Genus *Parabaliothrips* Priesner

Priesner, 1935a: 125. Type species: *Parabaliothrips takahashii* Priesner, 1935.

Two pairs of anteocellar setae; one pair of long interocellar setae, usually situated between 2 posterior ocelli; one long seta posterior to each compound eyes. Cheeks parallel. Antennae 8-segmented. Anterior margin and anterolateral angulars of pronotum might with long setae, however, shorter than setae on posteroangulars. Two long setae on each posteroangular, 4 pairs of setae on posterior margin, median pair longest. Both upper and lower veins of forewing with vein setae arranged evenly. Abdominal tergite VIII with lateral, located in front to spiracle. Male with 2 stout spines on median of tergite IX. Six species in the world.

Key to species of *Parabaliothrips* in Taiwan

1. Anterior margin, anterolateral angles and posteroangulars of pronotum with long setae, anteromarginal setae about 2/3 the length of setae of posteroangular .....*coluckus*

-- Anterior margin and anterolateral angles of pronotum without any long setae, only posteroangulars with long setae.....2

2. Ocellar area and body with red pigment; distal ends of antennal segment VI and VII-VIII yellow..... *takahashi*

-- Ocellar area and body without red pigment; distal ends of antennal segment VI and VII-VIII dark brown .....*grandiceps*

Parabaliothrips coluckus (Kudo) (Fig. 73)

Krasibothrips coluckus Kudo, 1977: 4-8.

Female body length 1.4 mm on slide. Body dark brown, ocelli, thorax and abdomen with red pigment; antennal segments I and II dark brown, same color as head; III-V and distal ens of VI light yellow, base of VI, VII and VIII pale brown; forewing pale brown, fusing point of upper and lower veins paler; legs brown, base of fore tibiae light, tarsi light yellow.

Head wider than long, projected slightly between antennae, with transverse striae behind compound eyes. Two pairs of anteocellar setae, one pair of long interocellar setae, situated between 2 posterior ocelli. Median pair of ocular setae shortest, situated behind posterior ocelli; submedian setae situated behind eyes are second shortest; 4th pair of setae from median longest. Maxillary palpi 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone.

Pronotum with 4 pairs of long setae, one pair on anterior margin, one pair on anterolateral angulars, and 2 pairs on posteroangulars, length of anteromarginal setae about 2/3 of posteroangular setae; median area of pronotum disc without setae, 4 pairs of short setae on posterior margin, median pair longest. Meso- and metafurca without spinula. Vein setae of forewing well-developed, 20 costal setae, 16-17 setae on upper vein, 14-15 on lower vein, arranged evenly. Tarsi 2-segmented.

Abdominal tergite VIII with small and complete posterior comb; ctenidia in front of spiracle, and with one end reach spiracle. Sternites without discal setae.

Male color and shape similar to female, but smaller. Body length 1.3-1.4 mm on slide. Abdominal tergite IX with 2 pairs of stout setae; Sternites III-VII with glandular areas.

Distribution: Taiwan, Nepal, Malaysia.

Habitat: *Qiercus* sp., *Mahonia nepalensis*, *Stachyurus praecox*, *Micromeles allnifolia*, *Urticaceae*, weeds.

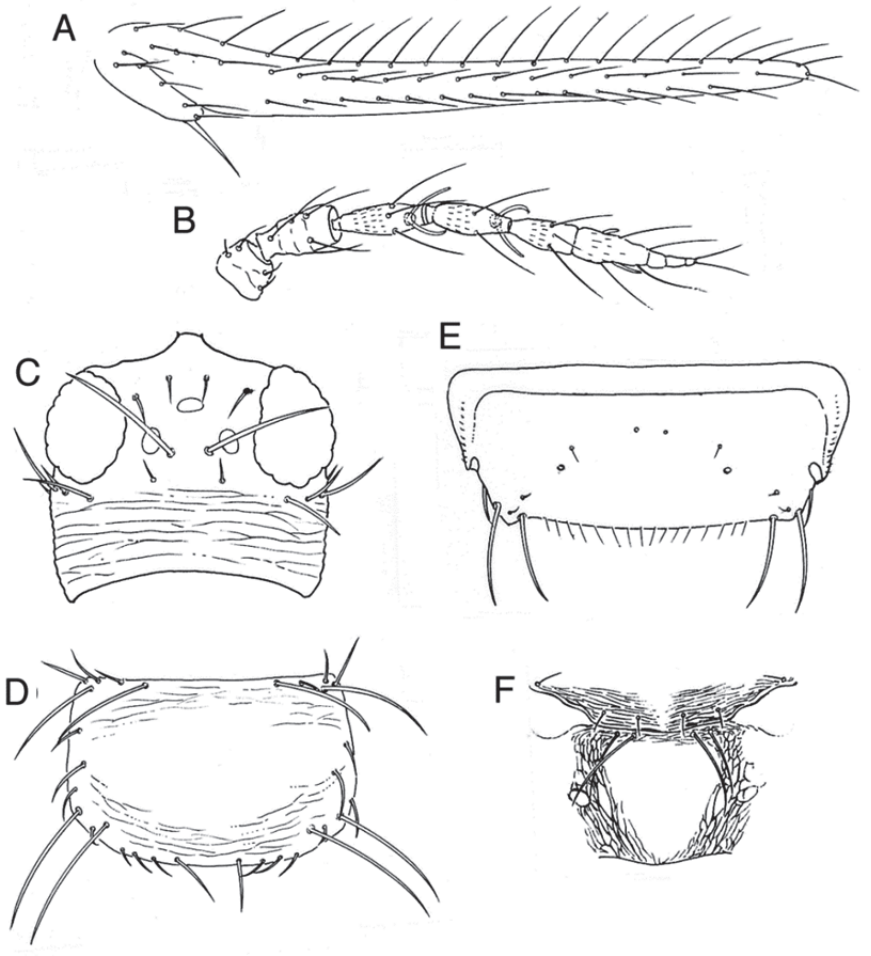

Fig. 73. *Parabaliothrips coluckus* (♀) A. forewing; B. antenna; C. head; D. pronotum; E. tergite VIII; F. meso- and metanotum.

Parabaliothrips grandiceps Priesner

Parabaliothrips grandiceps Priesner, 1935a: 126.

Female body length 1.7 mm on slide. Body dark brown, darker than *coluckus*, ocellar area and body without red pigment; antennal segments I and II same color as head; basal 1/3 of III in darker color, base of VI paler, the rest segments brown; VII and VIII brown; forewing brown, base and apex paler, base not completely transparent; fore tibiae almost completely brown.

Head wider than long, projected slightly between antennae, transverse striae behind compound eyes. Two pairs of anteocellar setae, one pair of long interocellar setae, situated between 2 posterior ocelli. Median pair of ocular setae shortest, situated just behind posterior ocelli; submedian setae situated behind eyes longest. Maxillary palpi 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone.

Pronotum with transverse striae, anteromargin and anterolaterals with several short setae, discal setae sparse, 2 pairs of long setae on posterolaterals. 4-5 pairs of setae in between, median pair longest. Meso- and metafurca spinula absent. Vein setae of forewing well-developed, 22 costal setae, 16 setae on upper vein, 13 on lower vein, arranged evenly. Tarsi 2-segmented.

Abdominal tergite VIII with small and complete comb; laterals of tergites VI-VIII with ctenidia, ctenidia of tergite VIII located in front of spiracle. Sternites without discal setae.

Male unknown.

Distribution: Taiwan.

Habitat: *Quercus* sp.

Remark: described according to the original description by Priesner 1935a.

Parabaliothrips takahashii Priesner (Fig. 74)

Parabaliothrips takahashii Priesner, 1935a: 125.
Yehiella aequosetosa Chen, 1976: 243, 244.

Female body length 1.4-1.7 mm on slide. Body dark brown, darker with abdomen, ocellar area and body with red pigment; antennal segments I and II dark brown and in same color as head; III-VIII light yellow, only base of III light brown; segments VII and VIII a little darker; forewing pale brown, base and apex paler; legs brown, distal end of tibiae light yellow, tarsi light yellow.

Head wider than long, projected slightly between antennae, with transverse striae behind compound eyes. Two pairs of anteocellar setae, one pair of long interocellar setae, situated between 2 posterior ocelli. Median pair of ocular setae shortest, situated just behind posterior ocelli; submedian setae situated behind eyes longest. Maxillary palpi 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone.

Pronotum with transverse striae, anteromargin and anterolaterals with several short setae, discal setae sparse, 2 pairs of long setae on posterolaterals. 4-5 pairs of setae in between, median pair longest. Meso- and metafurca spinula absent. Vein setae of forewing well-developed, 20 costal setae, 13-15 setae on upper vein, 14 on lower vein, arranged evenly. Tarsi 2-segmented.

Abdominal tergite VIII with small and complete comb; laterals of tergites VI-VIII with ctenidia, ctenidia of tergite VIII located in front of spiracle. Sternites without discal setae.

Male 1.2-1.3 mm on slide. Color and shape similar to female, but smaller and paler. Basal 1/4 of forewing transparent; tergite IX with 2 pairs of stout spine; sternites III-VII with transverse glandular areas.

Distribution: Taiwan, Nepal, Malaysia.

Habitat: *Liquidambar formosana*, *Acer serrulatum*, *Stachyurus praecox*, *Quercus* sp, *Mahonia nepalensis*.

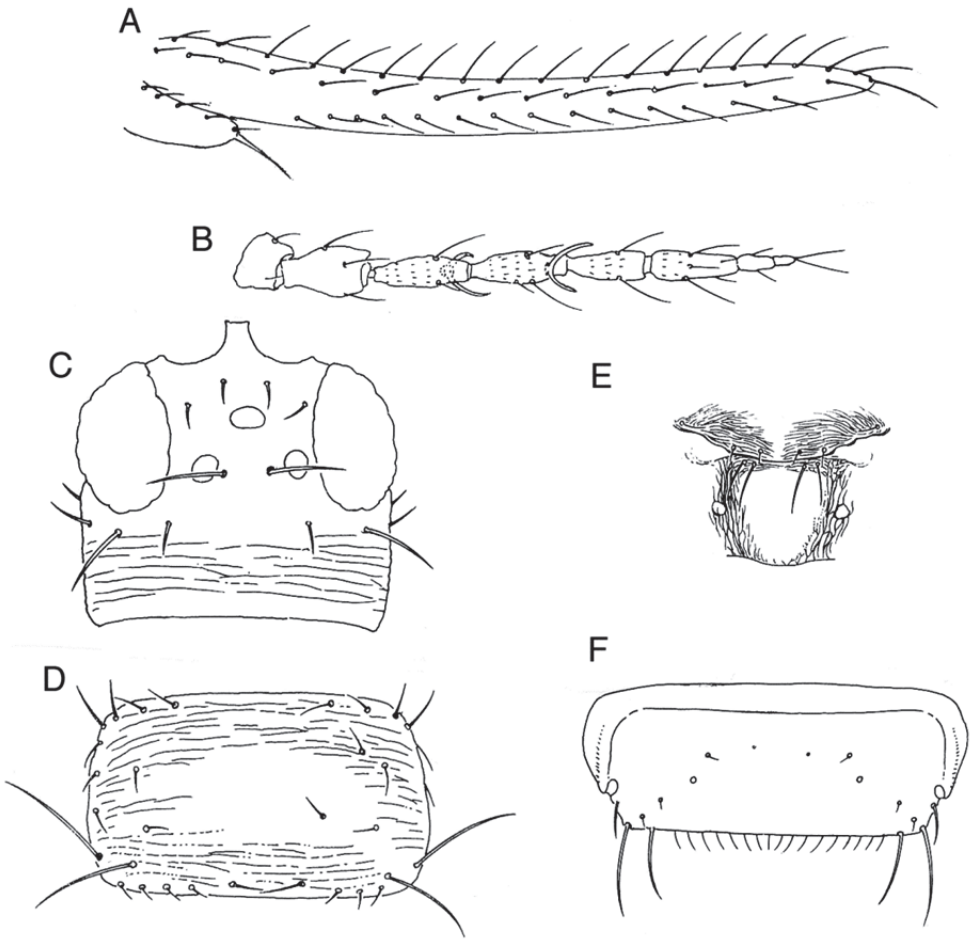

Fig. 74. *Parabaliothrips takahashii* (♀) A. forewing; B. antenna; C. head; D. pronotum; E. metanotum; F. tergite VIII.

Genus *Plesiothrips* Hood

Hood, 1915b: 129. Type species: *Sericothrips perplexa* Beach, 1896.

Head small, wider than long, produced in front, constricted behind compound eyes. Anterior ocellus situated anterior to front margin of eyes. Antennae 7- or 8-segmented. Prothorax narrow, 2 long setae on each of posteroangulars. Forewings slender, ovipositor retarded. Male antennal segments IV and V with obvious basal ring, III and VII short, IV-VI elongate and bearing many long hairs; one pair of long, heavily chitinized, finger-like processes arising from tubercles on posteromargin of abdominal tergite IX, distance between setae about same as their length. About 20 species in the world.

Plesiothrips perplexus (Beach) (Fig. 75)

Sericothrips perplexus Beach, 1896: 216.
Thrips perplexus (Beach); Hinds, 1902: 179, 184.
Plesiothrips perplexus (Beach); Hood, 1915b: 129.

Female body length about 1 mm on slide. Head and thorax brown, abdomen light yellow, abdominal segments IX and X darker; antennae brown, segment III light yellow, IV pale brown; forewings pale brown, base transparent; legs yellow, outer margin of fore femora grayish brown.

Head produced forwardly to form a triangular area, anterior ocellus located on this triangular area, anterior to front margin of compound eyes. One anteocellar setae on both sides of anterior ocellus; interocellar setae situated ahead of inner side of 2 posterior ocelli. 5 pairs of postocular setae. Cheeks concaved behind compound eyes, eyes bulged, width of eyes shorter than distance

between them. Maxillary palpi 3-segmented. Antennae 7-segmented, segments III and IV with forked sense cone, IV obviously longer than III.

Prothorax same length as head, slightly wider than head. Two pairs of long setae on posterolateral angles, 3 pairs of posteromarginal setae. Mesonotum almost without transverse striae, one pair of median setae. Forewing slender, about 20 costal setae, upper vein with 13+2 setae, lower vein with 11-12 setae.

Posteromarginal comb of abdominal tergite VIII lacking in middle; tergite X split completely; sternites without discal setae, ovipositor retarded.

Male body length 0.9 mm on slide. Body dark brown, only in yellow color with distal end of antennal segment III, distal ends of tibiae, tarsi and abdominal segments V and VI, thorax with red pigment. Forewing grayish brown, almost transparent in basal 1/3. Head narrow, longer than wide; antennal segments III and VII short, IV-VI long, base ring of IV and V obvious, IV-VI with many long hairs; one pair of long, heavily chitinized, finger-like processes arising from tubercles on posteromargin of abdominal tergite IX; lateral 1/3 of sternites III and IV with one pair of glandular areas. (Hood ,1915b)

Distribution: Taiwan, US, Porto Rico, Cuba, Fuji, Australia, Hawaii, Solomon Islands.

Habitat: *Galium* spp., *Stellaria uliginosa*, *Mercurialis perennis*, *Vaccinium* sp., Natal grass, weeds.

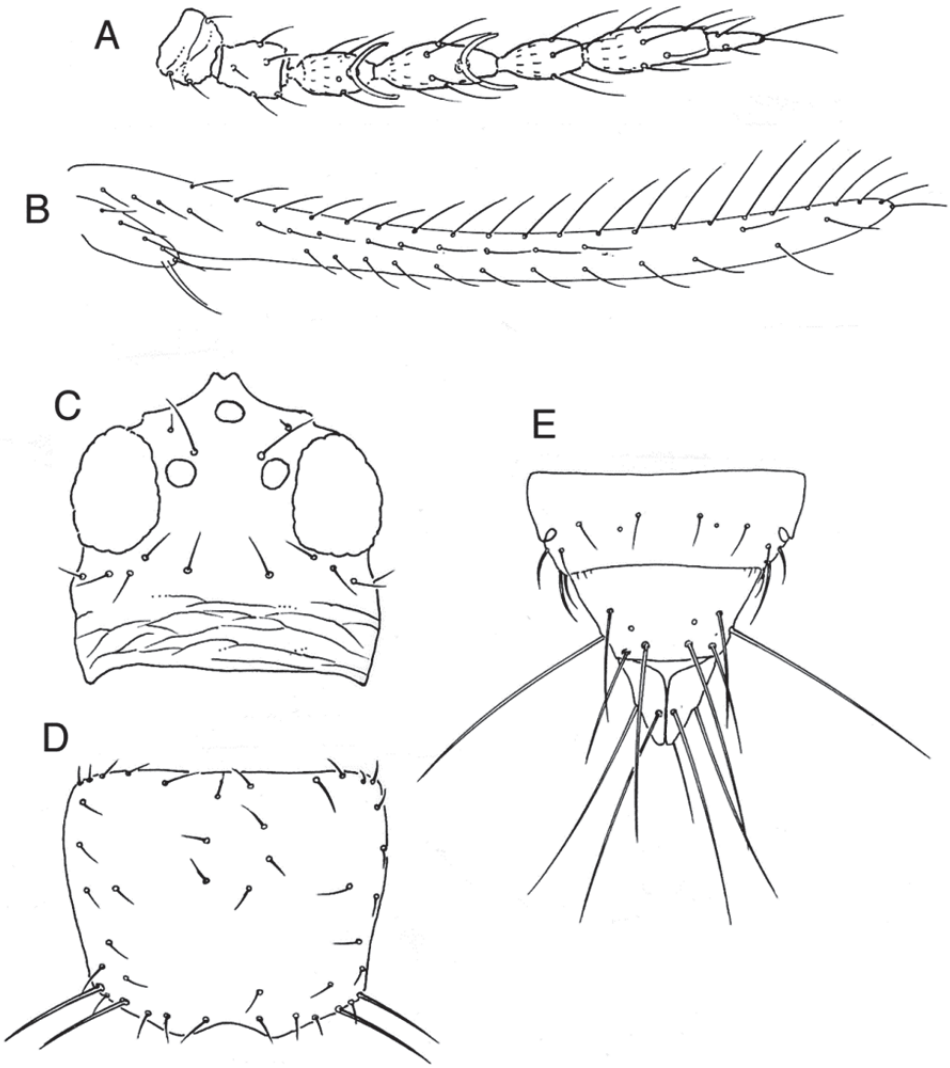

Fig. 75. *Parabaliothrips perplexus* (♀) A. antenna; B. forewing; C. head; D. pronotum; E. tergites VIII-X.

Plesiothrips sakagamii Kudo (Fig. 76)

Plesiothrips sakagamii Kudo, 1974: 111-113.

Female body length about 1.5 mm on slide. Head and abdominal segments VIII-X dark brown, I-IV yellow, V yellowish brown, VI pale brown, VIII with few red pigment; antennal segments I, II, VI and VII dark brown, III yellow, IV yellow with brown; V pale brown with yellow base; forewings dark brown, except basal 1/5 in very light color; legs yellow, slightly brownish at margin.

Head produced forwardly to form a triangular area, anterior ocellus located on this triangular area, anterior to front margin of compound eyes. Two pairs of anteocellar setae; interocellar setae situated ahead of inner side of 2 posterior ocelli. 5 pairs of ocular setae. Cheeks concaved behind compound eyes, eyes bulged, width of eyes shorter than their interval. Maxillary palpi 3-segmented. Antennae 7-segmented, segments III and IV with forked sense cone, III short, VI longest, last segment same length as II or V.

Prothorax about parallel on both sides, 5 pairs of setae on anterior margin, 2 pairs of long setae on posteroangulars, inner pair longer, 4 pairs of posteromarginal setae. Forewing upper vein with 11+2 setae, lower vein with 13-14 setae. Tarsi 2-segmented.

Abdominal tergite VIII without comb; tergite X split partially; sternites without discal setae, sternite III without glandular areas, tooth-like projections along posterior margin of pleurites.

Distribution: Taiwan.

Habitat: Grasses.

Remarks: *P. sakagamii* was described here according to Kudo (1974b). This species can be separated from *P. perplexus* by having 2 pairs of anteocellar setae**.**

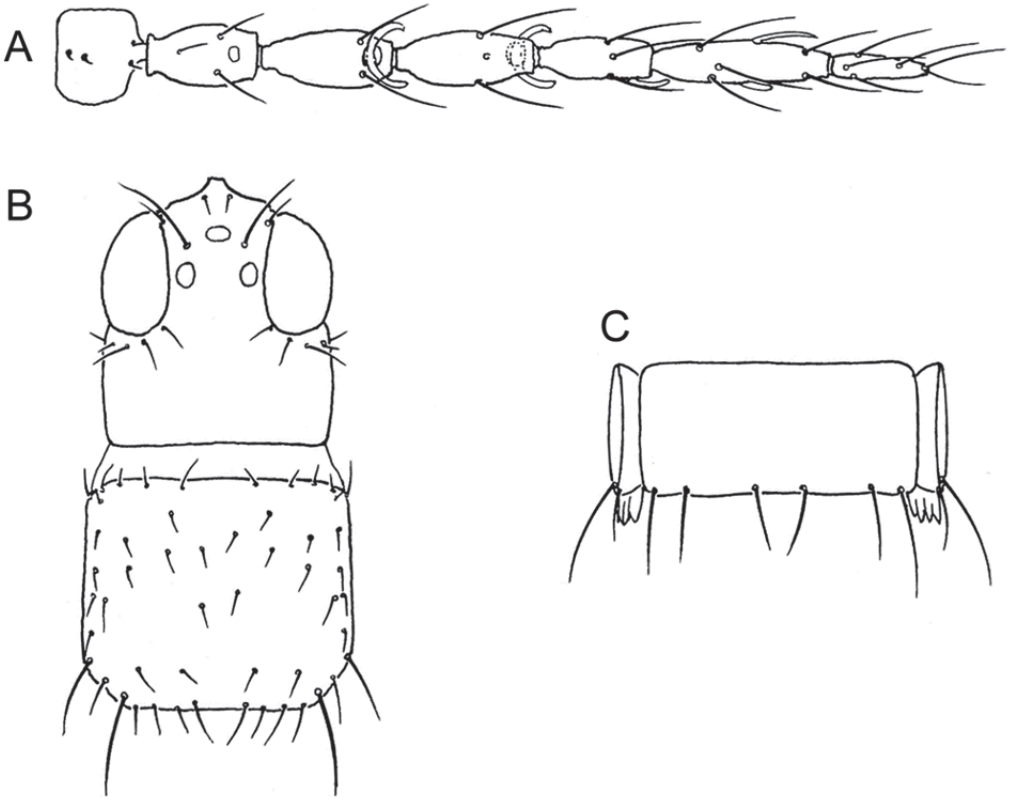

Fig. 76. *Parabaliothrips sakagamii* (♀) A. antenna; B. head and pronotum; C. tergite VI. (Kudo, 1974)

Genus *Projectothrips* Moulton, 1929

Moulton, 1929b: 95. Type species: *Projectothrips pruthi* Moulton, 1929.

Head wider than long, with 2 pairs of anteocellar setae. Antennae 8-segmented. Antennal segment VIII, maxillary palpi and labial palpi bear microtrichia. Each posteroangular of pronotum with 1-3 long setae. Mesofurca with spinula, metafurca with or without spinula. Setae on upper vein of forewing either nearly uninterrupted, or narrowly interrupted. Abdomen with rows of microtrichia on laterals of tergites and sternites; laterals of tergites III-VI or III-VII with posteromarginal comb; posteromarginal comb on both tergite VII and VIII, or only on VIII complete. Sternites II-VII with at least 4-5 pairs of posteromarginal setae (rarely on VII 3 pairs). Male abdominal sternites III-VI with transverse glandular areas. There are 9 species in the world.

Projectothrips imitans (Priesner)

Docidothrips imitans Priesner, 1935a: 127.
Projectothrips imitans (Priesner); Bhatti, 1969: 379.

Female body length 1.4 mm on slide. Body Pale brown with red pigment; head brown, darker than other body parts; ocellar area with red pigment; abdomen grayish brown with apex darker. Antennal segments I and II same color as head, III and IV light yellow, V pale brown, VI-VIII brown; forewings brown with transparent base; femora brown, tibiae and tarsi light yellow.

Head wider than long, 2 pairs of anteocellar setae, interocellar setae located inside ocellar triangle; ocular setae arranged in a row, labial palpi and maxillary palpi hairy, maxillary palpi 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone.

Pronotum with about 40 pairs of discal setae, only one pair of long setae on posteroangulars (56 μ), outer pair minute, 2-3 pairs of inner posteromarginal setae. Mesofurca with spinula. Forewing with 30 costal setae, upper vein with 11-13 setae from base and 2 distal setae; 12-14 lower vein setae, arranged continuously. Tarsi 2-segmented.

Laterals of abdominal tergites II-VII with rows of microtrichia and comb on posteromargin; posterior comb of tergite VIII complete; tergite X split completely. Sternites with microtrichia; 6-7 pairs of setae on posterior margin of sternites II-VII.

Male unknown.

Distribution: Taiwan.

Habitat: Flowers of *Psidium guajava.*

Remarks: Antennal segment VII of most species of this genus are short and segment VIII about 3 times as long as VII, while length of antennal segments VII and VIII of this species are only 1:2, eg. 16 μm and 32-34 μm. No specimen was observed. The description was summarized from original paper of Priesner (1935a), and Bhatti (1973).

Genus *Pseudanaphothrips* Karny

Pseudoanaphothrips Karny, 1921a: 216, 242.

Type species: *Pseudothrips achaetus* Bagnall, *Pseudothrips parvus* Bagnall, 1916.

Head wider than long, 2 pairs of anteocellar setae, transverse striae behind compound eyes, setae short. Antennae 8-segmented. Six pairs of about equally small setae on posteromargin and posteroangulars, some species may have setae just a little longer on posteroangulars. Mesofurca with spinula, metafurca spinula absent. Complete rows of setae on upper and lower veins. Tergites VI-VIII with ctenidia in front of spiracle in tergite VIII; comb on tergite VIII with sparse teeth. Sternites without discal setae. Male with glandular areas on sternites III-VII. Mainly distributed in Australia, about 10 spp.

Pseudanaphothrips querci (Moulton)

Isochaetothrips querci Moulton, 1928b: 306, 329.

Homochaetothrips querci (Moulton); Sakimura, 1968: 61.

Pseudoanaphothrips querci Bhatti & Mound, 1980: 1-2.

Female body length 0.9 mm on slide. Body uniformly dark brown, only antennal segments III, IV, base of V, and all tarsi paler. Forewing grayish brown, legs brown.

Head short, twice as wide as long, depressed in front, all normal setae small, postocular area with transverse striae. Compound eyes big, about 3/5 the length of head. Postocular setae about equal in length, ocelli small. Maxillary palpi 3-segmented. Antennae 8-segmented.

Prothorax about 1.6 times the length of head. Anteroangulars without long setae, a pair of comparativlely long setae on each posterior angular; posteromargin with 3 to 4 pairs of setae,

median pair longest, and about as long as posteroangular setae. Mesofurca with spinula, metafurca spinula absent. Forewing with 26 costal setae, 17 setae on upper vein, 13 setae on lower vein, setae of both veins arranged evenly. Legs short.

Posteromarginal comb of abdomional tergite VIII complete, Tergite X split completely. Sternites without discal setae.

Male unknown.

Distribution: Taiwan.

Habitat: *Quercus* sp.

Remarks: No specimen was observed. Description was made according to the original paper of *Isochactothrips querci* Bagnall, 1915 (Moulton, 1928a).

Genus *Rhamphothrips* Karny

Karny, 1912: 297. Type species: *Thynchothrips tenuirostris* Karny.

Head small, 2 pairs of anteocellar setae, interocellar setae short. Mouth cone long. Maxillary palpi 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone. Prothorax much longer than wide; 6-7 pairs of setae on posteromargin of pronotum, posteroangular pair longest. Meso- and metafurca spinula absent. Fore femora enlarged, one spine on distal end of fore tibiae, tarsi hooked. Vein setae of forewing unevenly arranged, lower vein with 4 setae, posterior fringe wavy. Abdominal tergite X split completely; sternites without discal setae. Male with teeth on posterior margin of abdominal tergites; sternites without glandular areas. About 20 species in the world, all in tropical area.

Rhamphothrips quintus Wang (Figs. 77, 78)

Rhamphothrips quintus Wang, 1993c: 341-346.

Female body length 1.1 mm on slide. Body and legs yellow; antennal segments I-V and base of VI light yellow, the rest of antennae brown; forewings transparent; main setae brown.

Head transverse and small in comparison with prothorax; cheek shorter than the length of compound eye. Two pairs of minute anteocellar setae, one pair of minute interocellar setae situated within ocellar triangle, between anterior margins of posterior ocelli; transverse striae behind eyes. Mouth cone long and beak-like, reach posterior margin of prothorax, maxillary palpi slender, 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone.

Pronotum much longer than wide, anterior margin with 4 pairs of setae, about 30 discal setae, posterior margin with 7 pairs of setae, the second from outermost pair shortest. Meso- and metafurca without spinula. Fore tibia with an inconspicuous projection at inner apex, one seta on

top of it; inner margin of hind tibia with a row of 5-6 spines, distal one strongest; tarsi 2-segmented. Forewing with 24 costal setae; upper vein with 4 basal setae, followed by 3 subbasal setae, then 3 distal setae; lower vein with 4 setae; hind fringe wavy.

Abdomen tergite I with transverse striae; tergite VIII without comb, median and submedian pair of setae situated near posterior margin; tergite IX with 4 pairs of long setae on posteromargin, submedian pair weakest; tergite X split completely.

Male color and shape similar to female but smaller. Distal end of fore tibia with an inwardly directed finger-like projection. Abdominal tergites IV -VIII with teeth on laterals of posteromargin; tergite V with teeth also in middle; tergite IX with a median tubercular projection, one small seta on each side.

Distribution: Taiwan.

Habitat: *Garcinia spicata*, *Phragmites communis*, *Cunninghamia* sp., *Trema orientalis*, *Cinnamomum camphora*, *Ampelopsis brevipeduncuata*, *Erechtites valerianaefolia*, *Macaranga tanarius*, *Livistona* sp.

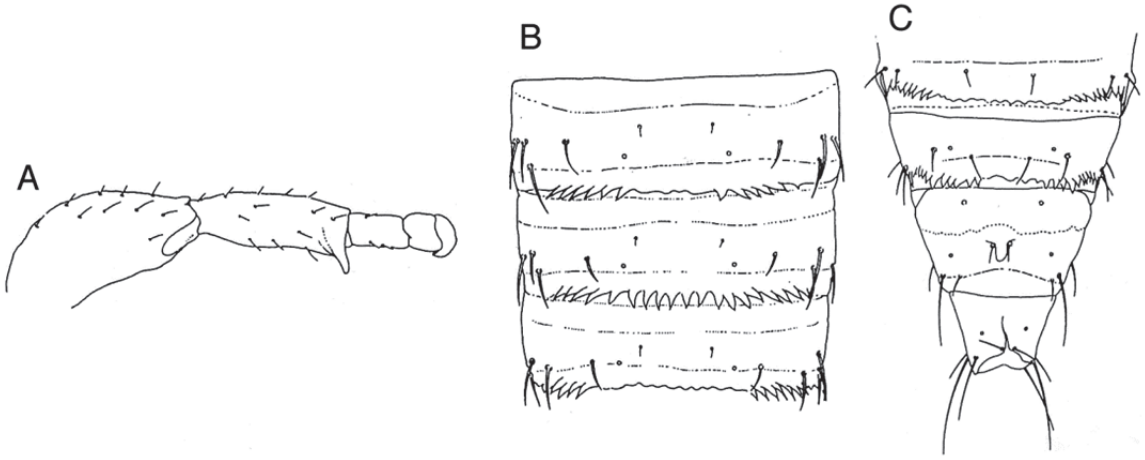

Fig. 77. *Rhamphothrips quintus* (♂) A. fore leg; B. tergites IV-VI; C. tergites VII-X.

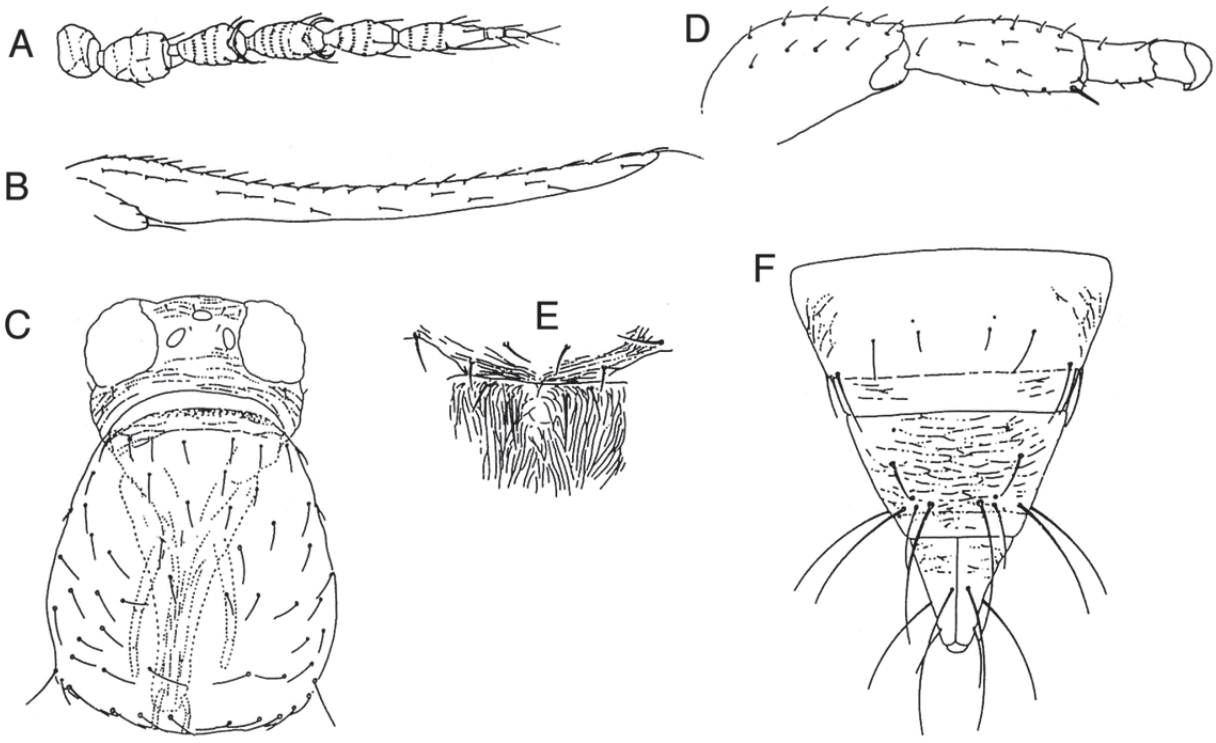

Fig. 78. *Rhamphothrips quintus* (♀) A. antenna; B. forewing; C. head and pronotum; D. fore leg; E. meso- and metanotum; F. tergites VIII-X.

Genus *Salpingothrips* Hood

Hood, 1935: 157. Type species: *Salpingothrips minimus* Hood, 1935.

Head wider than long, without long setae; mouth cone broad and long, exceed posteromargin of prosternum; maxillary palpi long, 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone, segments VII and VIII slender. Pronotum long, posteroangular each with 2 stout setae which are broadly expanded at apex. Vein setae of forewing sparse and minute. Posteromargin of abdominal tergite I serrated with minute teeth, posterior margin of tergites and sternites II-VIII with flange, tergite X split completely. There are 3 species in the world.

Salpingothrips aimotofus Kudo (Fig. 79)

Salpingothrips aimotofus Kudo, 1972: 230-233.

Female body length 0.65-0.85 mm on slide. Head yellowish brown; prothorax, abdomen (except tergite I pale brown) and legs yellow to orange yellow; pterothorax dark brown; antennal segments I-IV yellow with segment I darker, segments V-VIII dark brown; forewings pale yellow, with a median brown area about 1/4 the length of wing, scale brown.

Head wider than long; interocellar setae short, situated between 2 posterior ocelli; transverse striae behind compound eyes. Mouth cone long, reach mesothorax. Maxillary palpi 3-segmented. Antennae 8-segmented, segments II-VI with pedicles, segment VI longest, VII and VIII about same length, III and IV with forked sense cone.

Posteroangulars of pronotum with 2 pairs of expanded setae, about same length; 4 pairs of inner posteromarginal setae. Metanotum with median reticulated sculpture, median pair setae situated behind anterior suture. Forewing with 15-18 costal setae; upper vein with 7-8 basal setae, 3 distal setae; lower vein with 6-7 setae.

Posterior margin of tergite I with minute teeth-like projections at extreme lateral side; tergites II-VIII with posterior flange; tergite VIII without comb; tergite X split completely.

Male described by Chen (1977b). Body color and shape similar to female; median of posterior margin of sternite VIII extended, with 2 discal pores in front; sternites III-VII with circular glandular area.

Distribution: Taiwan, Japan.

Habitat: *Pueraria thunbergiana* (Japanese record), *Trema orientalis*, *Acacia confuse*, *Agathis alba*, *Morus* sp., *Cinnamomum camphora*, *Firmiana simplex*, *Pongamia pinnata*, *Alpimia speciosa*, *Rubus* sp., *Phragmites communis*, *grasses* (Taiwan records)

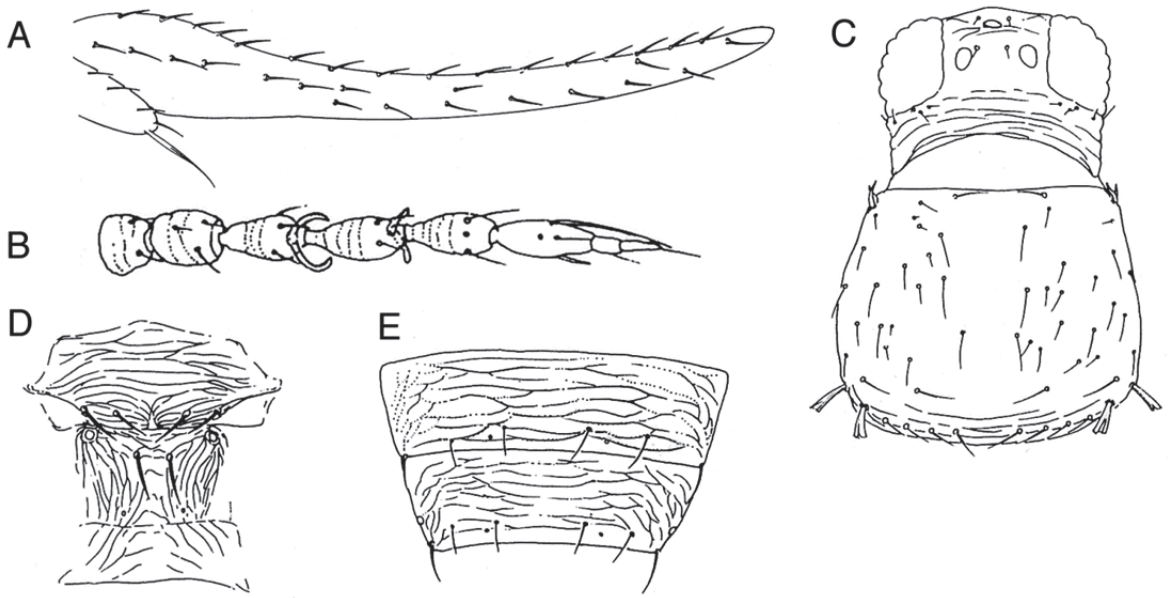

Fig. 79. *Salpingothrips aimotofus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VII and VIII.

Genus *Scirtothrips* Shull

Shull, 1909: 222. Type species: *Scirtothrips ruthveni* Shull, 1909.

Head wider than long, with dense transverse striae; 2 pairs of anteocellar setae, 2 pairs of ocular setae right behind posterior ocelli. Maxillary palpi 3-segmented. Antennae 8-segmented, segments III and IV with forked sense cone. Pronotum broad, covered with dense transverse striae, 4 pairs of setae on posteromargin and posterolaterals, 2nd pair from median longest. Vein setae of forewing not continuous. Tergites and sternites with rows of microtrichia; tergites may with dark antecostal ridges or brownish shadings. Tergite VIII with complete row of posterior comb. Male sternites without glandular area, some species with drepanae on tergite IX.

About 100 species in the world, most of them distributed in tropical area. Body small and yellowish, good at jumping. About 10 species are reported crop pests.

Key to species of *Scirtothrips* in Taiwan

1. Antecostal ridges of abdominal tergites about 1/2 length of segments, flowed by median brownish shadings.....*dorsalis*
-- Antecostal ridges of abdominal tergites across full length of segments, without median shadings 2

2. Interocellar setae situated in front of posterior ocelli; posterior fringe of forewing wavy, lower vein with 2 setae, 3 setae on front margin of scale..... *acus*
-- Interocellar setae situated between 2 posterior ocelli; posterior fringe of forewing straight, lower vein with 3 setae, 4 setae on front margin of scale ..... *asinus*

Scirtothrips acus Wang (Fig. 80)

Scirtothrips acus Wang, 1994: 2-4.

Female body length 0.8 mm on slide. Yellow, antecostal ridges on tergites II-IX dark brown, across full segments, without grayish shadings; antecostal ridges light brown on sternites IV-VI, and brown on sternites VII and VIII; antennal segment I white, segments II-VIII brown; forewings grayish yellow; legs yellow.

Two pairs of anteocellar setae, about same length, shorter than interocellar setae; interocellar setae situated between anterior and posterior ocelli. Antennae 8-segmented, segments III and IV with forked sense cone.

Pronotum wider than long, anterior margin with one pair of setae, about 8-12 discal setae; 4 pairs of setae on posterior margin and posteroangulars, the second pair from midline longest, the innermost pair next longest. Scale of forewing with 3 antecostal setae, upper vein with 3 basal setae, 5-6 median setae, 2 distal setae; lower vein with 2 (rarely 1 or 3) setae, posterior fringe wavy.

Laterals of abdominal tergites II-VIII with microtrichia, and 3 pairs of setae; median pair of setae on tergites II-V short and inconspicuous; median pair setae on tergites VI-VIII shorter than submedian setae, and longer than distance between them.

Male unknown.

Distribution: Taiwan.

Habitat: *Calocedrus formosana*, *Morus* sp., *Michelia figo*.

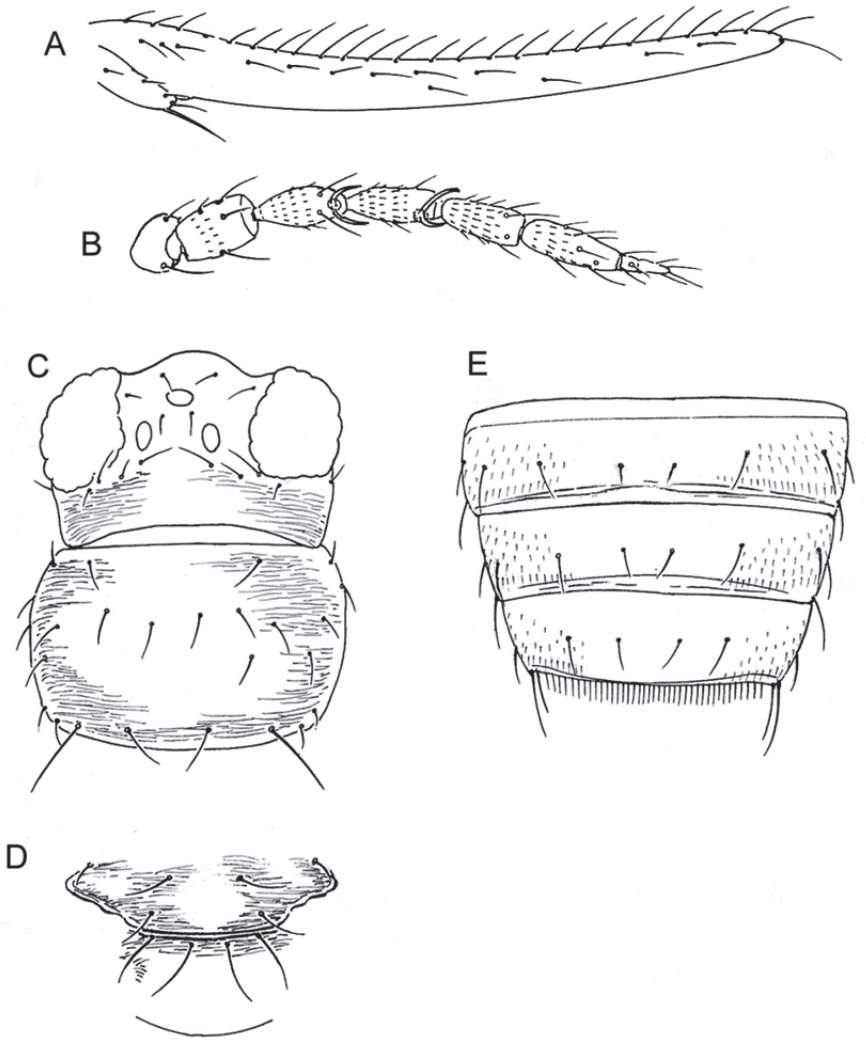

Fig. 80. *Scirtothrips acus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VI-VIII.

Scirtothrips asinus Wang (Fig. 81)

Scirtothrips asinus Wang, 1994: 4-6.

Female body length 1 mm on slide. Golden yellow (yellow type) or grayish white (white type). Yellow type: thorax darker than head and abdomen, abdominal tergites I-VIII darker on laterals than median. Both types with antecostal ridges on tergites III-VIII dark brown, across full segments; antecostal ridges on sternites III-VII paler; antennal segment I light yellow, segment II golden yellow (yellow type), or grayish white (white type), segments III-VIII brown; forewings grayish yellow; legs light yellow.

Two pairs of anteocellar setae, second pair longer, about same length as interocellar setae; interocellar setae situated between 2 posterior ocelli. Antennal segments II-VI with microtrichia, segment III with basal ring, segments III and IV with forked sense cone.

Anterior margin of pronotum with 2 pairs of setae, median pair a little farther away from margin; 12-16 discal setae; 4 pairs of setae on posteromargin and posteroangulars, the second pair from median longest, and the median pair the second longest. Upper vein with 3 basal setae, followed by 4 median setae, then 3 distal setae; lower vein with 3 setae, posterior fringe wavy.

Laterals of abdominal tergites II-VIII with microtrichia fields, each side with 3 discal setae; median setae on tergites II-VII longer toward back, and longer than distance between them; median setae on tergite VIII longer than submedian setae, about same length as segment, and distance between median setae about twice the distance on tergite VII.

Male body length 0.7-0.8 mm on slide. Color and shape similar to female. Abdominal tergite IX with drepanae.

Distribution: Taiwan.

Habitat: *Cupresaceae*, *Chamaecyparis formosensis*, *Cunninghamia* sp., *Cassia* sp., weeds.

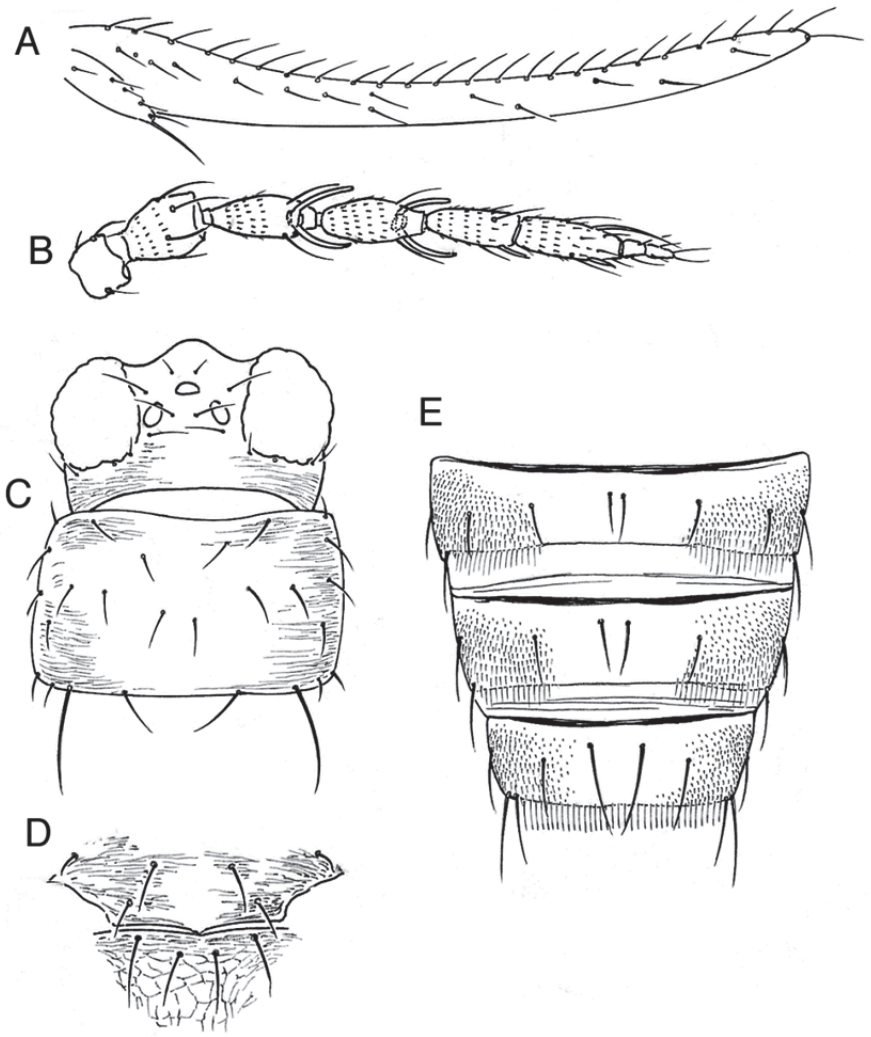

Fig. 81. *Scirtothrips asinus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VI-VIII.

Scirtothrips dorsalis Hood (Fig. 82)

Assam thrips, Chilli thrips

Scirtothrips dorsalis Hood, 1919: 90.
Heliothrips minutissimus Bagnall, 1919: 260.
Anaphothrips andreae Karny, 1925: 24, 54.
Anaphothrips oligochaetus Karny; Ramakrishna, 1925: 871.
Neophysopus fragariae Girault, 1927: 1.
Hercothrips minutissimus (Bagnall); Hood, 1928: 233.
Scirthohrips andreae (Karny); Hood, 1935: 153.
Caliothrips minutissimus (Bagnall); Fauré, 1962: 9, 10.

Female body length 0.7-0.9 mm on slide. Orange yellow to grayish brown, median 1/3 to 1/2 of antecostal ridges on abdominal tergites III-VIII dark brown, followed by grayish brown shadings; antecostal ridges on sternites IV-VII brown; antennal segment I light yellow, II golden yellow, III-VIII brown, bases of III-V paler in some specimens; forewings orange yellow or grayish brown, with subbasal and apical lighter areas.

Head wider than long, 2 pairs of anteocellar setae, interocellar setae situated between 2 posterior ocelli. Antennae 8-segmented, segments III and VI with forked sense cone.

Pronotum wider than long, 2 pairs of anterior marginal setae, 12-15 discal setae, 4 pairs of setae on posteromargin and posteroangulars, the second pair from median longest, and the rest setae about same length. Forewing with 4 antecostal setae on scale, upper vein with 3 basal setae, followed by 3-4 median setae, then 3 distal setae; lower vein with 2 setae, posterior fringe straight.

Lateral 1/3 of abdominal tergites II-VIII with dense microtrichia, each side with 3 discal setae; median setae on tergites II-VII longer toward back, and longer than distance between

them; median setae on tergite VIII longer than submedian setae. Sternites with microtrichia occupying full width. Sternites II-VII without discal setae.

Male body length 0.7 mm on slide. Color and shape similar to female. Lower vein of forewing with only one setae. Abdominal tergite IX without drepanae.

Distribution: widely distributed in Asia, Africa, America, Australia, and Pacific Ocean.

Habitat: Highly polyphagous. *Jasminus sambac*, *Gerbera jamesonii*, *Dahlia pinnata*, *Cosmos bipinnatus*, *Rosa* sp., *Arachis hypogaea*, *Phaseolus radiates*, *Quisqualis indica*, *Nasturtium officinale*, *Thea sinensis*, *Acalypha hispida*, *Mangifera indica*, weeds.

Remarks: Specimens of this species varied in body color, from orange yellow to grayish brown. It infested tea, peanuts, citrus, mongo, rose and many other crops in Taiwan.

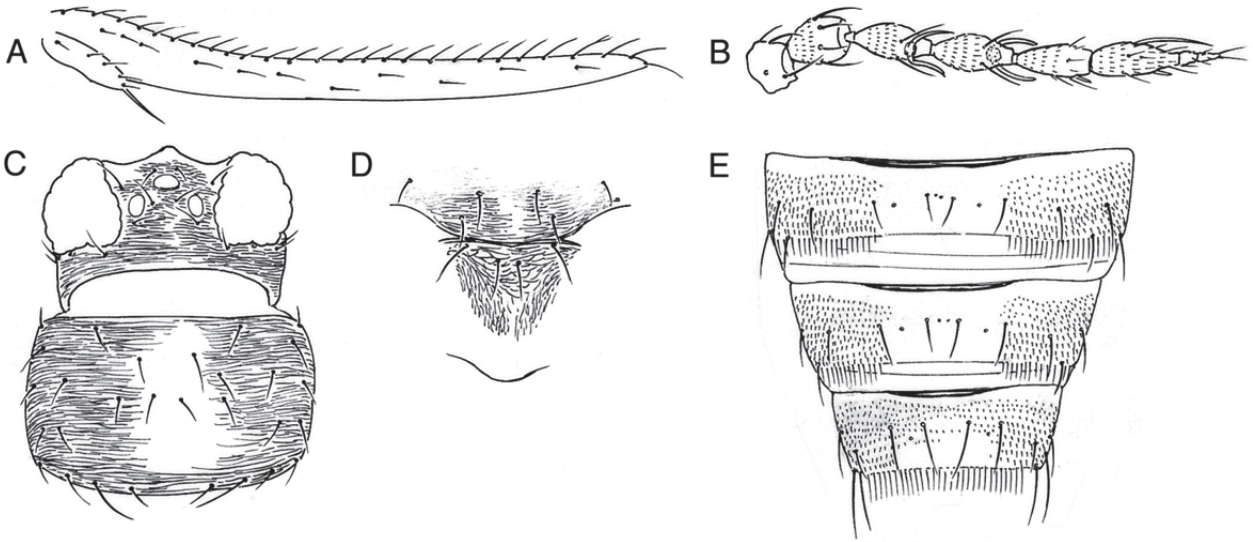

Fig. 82. *Scirtothrips dorsalis* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VI-VIII.

Genus *Scolothrips* Hinds

Hinds, 1902: 133, 157. Type species: *Thrips 6-maculata* Pergande, 1890.

Body weakly chitinized, with numerous long setae. Antennae 8-segmented, segments III and IV with forked sense cone. Pronotum with 5 (3 short 2 long) pairs of anterior marginal setae, 1 seta on each lateral side, 4 long setae on each posterior angle, some species with some short setae. Vein setae on forewing long, most species with 2 to 3 dark spots, one of them on scale. Abdominal sternites with 3 pairs of posterior marginal setae, without discal setae.

About sixteen species in the world, all are predacious, both adults and larvae prey on phytophagous mites.

Key to species of *Scolothrips* in Taiwan

1. Body bicolored, pronotum divided into 2 areas ..... *asura*
-- Body uniformly light yellow to yellowish brown, small grayish spots may exist; pronotum complete 2

2. Pronotum with one pair of setae situated slightly ahead of posterior margin (seta m) ..... *indicus*
-- Pronotum without such setae ..... *takahashii*

Scolothrips asura Ramakrishna & Margabandhu (Fig. 83)

Scolothrips asura Ramakrishna & Margabandhu, 1931: 1035.

Female body length 0.9 mm on slide. Most of head, pterothorax, abdominal segments I, II and VI-VIII brown with red pigment; laterals of occiput, prothorax, abdominal segments III-V, IX and X yellow to grayish white; ovipositor yellow. Antennal segments I and II brown, III-VIII light yellow; forewing with basal and subapical brown bands, median and apex transparent; legs grayish white.

Head wider than long, compound eyes big and budged, cheeks short. Transverse striae behind eyes. Ocellar area raised, 2 pairs of anteocellar setae, interocellar setae quite long, situated between centers of anterior and posterior ocelli. Maxillary palpi 3-segmented. Antennae 8-segmented, with long setae, segments III and IV with forked sense cone, segments VII and VIII short.

Anterior 1/3 of pronotum divided from posterior 2/3, pronotum with 5 (3 short 2 long) pairs of anterior marginal setae, one pair of setae on lateral sides, 4 pairs of long setae on posterior angular. Forewing with 19-22 costal setae, upper vein with 3 setae on basal dark area, one median seta, one seta on subapical dark area, and one distal seta; lower vein with 6-7 evenly arranged setae.

Median area of abdominal tergites I and II with transverse striae; tergite VIII without posterior comb. Sternites with 3 pairs of posteromarginal setae, without discal setae.

Distribution: Taiwan, India.

Habitat: found with spider mites on *Thea sinensis*, *Capsicm annum*, *Litchi chinensis*, *Melanolepis multigkandulosa*, *Firmiana simplex* and *Zizyphus mauritiana*.

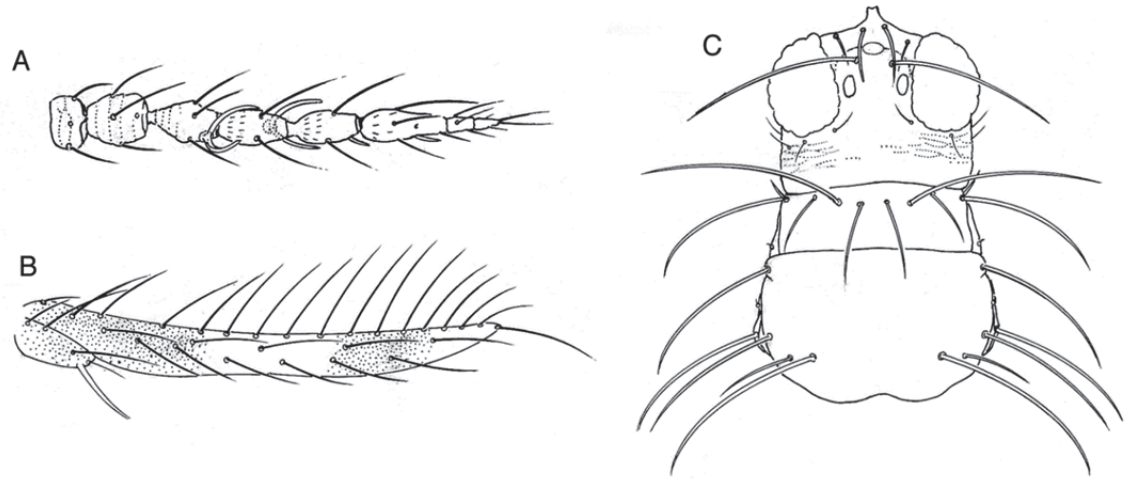

Fig. 83. *Scolothrips asura* (♀) A. antenna; B. forewing; C. head and pronotum.

Scolothrips indicus Priesner (Fig. 84)

Scolothrips 6-maculatus (Pergande); Karny, 1926: 195.
Scolothrips sexmaculatus (Pergande); Ramakrishna, 1928: 255.
Scolothrips indicus Priesner, 1950: 48, 59, 60.

Female body length 1.0-1.2 mm on slide. Pale yellow, compound eyes red, pronotum with 2 pairs of brown dots, laterals of pterothorax and abdominal tergites II-VI with gray markings, ovipositor yellow; antennal segments I and II pale yellow, the rest segments light gray; forewing transparent, scale brown, 3 brown spots divided forewing into 3 transparent areas, vein setae dark; legs pale yellow.

Head wider than long, cheeks short. Two pairs of anteocellar setae, one pair of interocellar setae, quite long, situated between centers of anterior and posterior ocelli. Maxillary palpi 3-segmented. Antennae 8-segmented, with long setae, segments III and IV with forked sense

cone, VI longest, VII and VIII short.

Pronotum with 5 (3 short 2 long) pairs of anterior marginal setae, 1 seta on each lateral side, 4 long setae on each posterior angular, one pair of setae situated a little ahead of posterior margin (seta m). Forewing with 16-17 costal setae, upper vein with 7-10 uncontinuous setae, lower vein with 5-7 evenly arranged setae.

Median area of abdominal tergites I-III with transverse striae; tergite VIII without posterior comb. Sternites with 3 pairs of posteromarginal setae, without discal setae.

Male macropterous or apterous, color similar to female, brown spots on body weak, abdominal sternites III-VIII with transverse glandular area.

Distribution: Taiwan, India, Mariana Islands.

Habitat: prey on spider mites on *Phaseolus vulgaris*, *Dianthus caryophyllus*, *Cordyline terminalis*, *Solanum melongena* and *Vigna sinensis*.

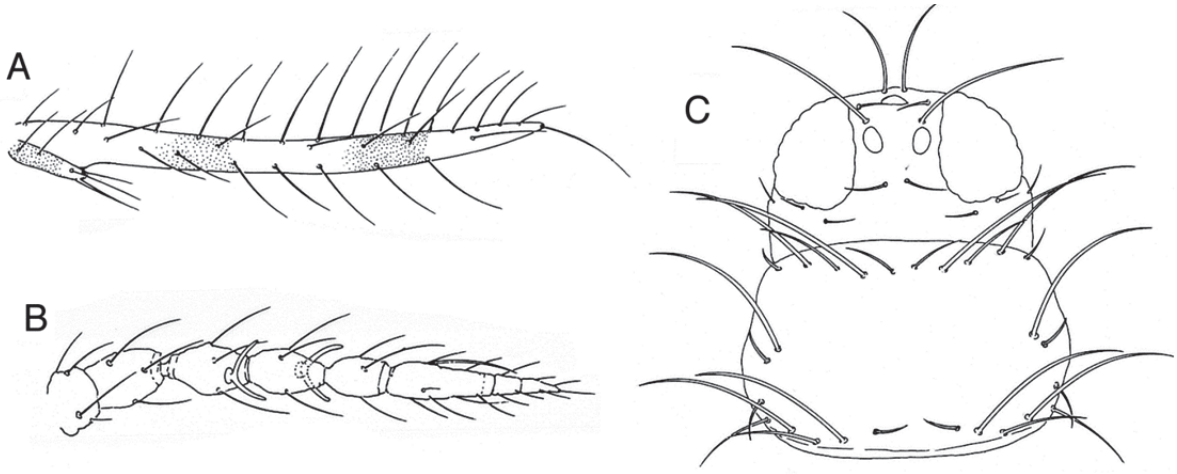

Fig. 84. *Scolothrips indicus* (♀) A. forewing; B. antenna; C. head and pronotum.

Scolothrips takahashii Priesner

Scolothrips takahashii Priesner, 1950: 52, 59.

Female body pale yellow to orange yellow, with faint gray markings so that the general color appears to be brownish yellow. Pronotum with 2 indistinct pale gray spots; laterals of meso- and metanotum slightly tinged with gray; all abdominal segments except IX and X which are pale yellow, shaded with pale gray, tip of segment X with some orange pigment; antennal segment I light, II-VIII pale gray, III-VI paler at base; legs with tibia very slightly shaded with gray along margins; forewing with scale gray except for its apical third, and with 2 cross-bands that are somewhat longer than wide.

Head wider than long, interocellar setae long. Antennae 8-segmented, with long setae, segments III and IV with forked sense cone. Maxillary 3-segmented.

Pronotum with 2 pairs of long and 3 pairs of short setae, seta m of disc of pronotum wanting. Forewing with 21-22 costa setae, upper vein with 9-10 seta, lower vein with 5-6 setae, wing setae very long.

Male unknown.

Distribution: Taiwan.

Habitat: Leaf of *Ricinus* sp.

Remark: This description was made according to the original paper of Priesner (1950)

Genus *Sorghothrips* Priesner

Priesner, 1936a: 88. Type species: *Sorghothrips longistylus* (Trybom, 1911)

Body slender, head long, produced in front. Two pairs of anteocellar setae situated behind anterior margin of compound eyes (differ from *Plesiothrips* and *Trichromothrips*), interocellar setae and ocular setae well-developed. Antennae 7 or 8-segmented, segments III and IV with forked sense cone, terminal segment long. Posteroangular of pronotum with 2 long setae, inner one longer. Forewings slender, costal setae long. Posteromargin of abdominal tergites and sternites with flanges. Male antennae 6-segmented, segment V short, VI long and columniform with many long setae, without a sharp terminal. Four species in the world.

Sorghothrips meishanensis Chen (Fig. 85)

Sorghothrips meishanensis Chen, 1977a: 147, 148.

Female body length 1.4 mm on slide. Color dark brown, antennal segments I-II and VI-VII dark brown, III-V pale yellow; forewings pale yellow on basal 1/4 and brown on distal 3/4; legs pale yellow; abdominal segments I-V pale yellow, VI-X dark brown.

Head produced in front, dorsal surface with transverse striae behind eyes. Interocellar setae almost as long as major postocular setae, 2 pairs of anteocellar setae. Maxillary palpi 3-segmented. Antennae 7-segmented, segment III normal, IV bottle shaped, sense cones on III and IV forked.

Pronotum with faint transverse striae on anterior and posterior margins. 2 pairs of major setae on posterior angle, 4 pairs of posteromarginal setae. Fore tibia with one strong seta at distal end, hind tibia with 7 strong setae on inner margin. Forewing costa with 25 setae, upper vein with 17 setae, lower vein with 12 setae.

Abdominal tergites I- VIII with transverse striae entirely and with a median pair of small setae ahead of median pore, median pore near the posterior margin; II-VII with crenulated posteromarginal flange; VIII without comb; IX with 2 pairs of discal pores and 3 pairs of major setae. Sternites without discal setae, III and IV with glandular area at middle.

Male unknown.

Distribution: Taiwan.

Habitat: *Zea mays*.

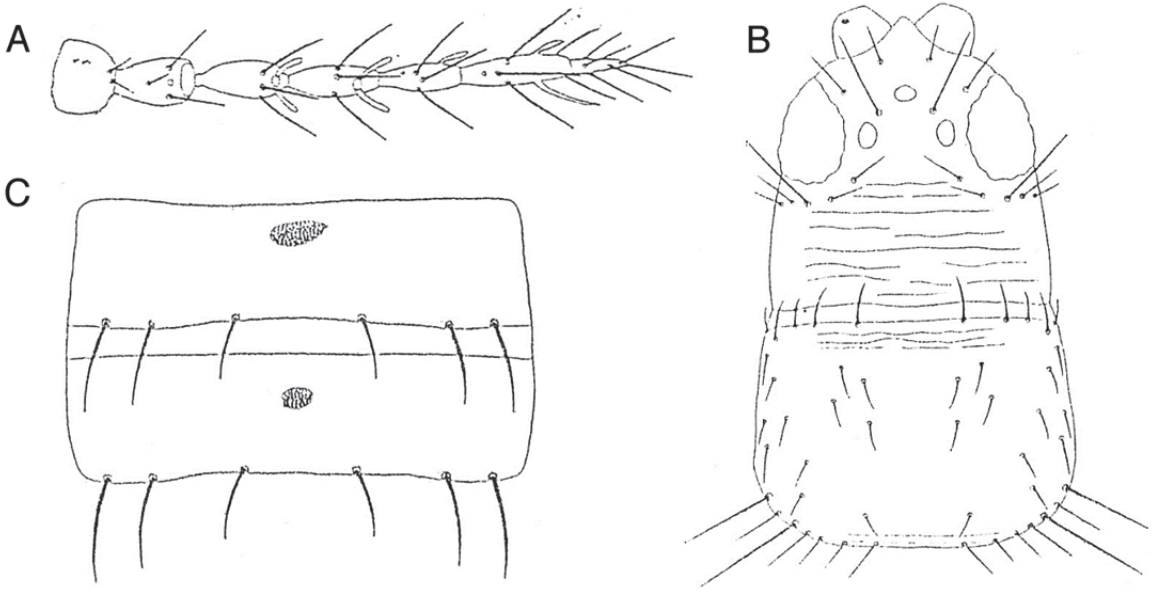

Fig. 85. *Sorghothrips meishanensis* (♀) A. antenna; B. head and pronotum; C. sternites III and IV. (Chen, 1977a)

Genus *Stenchaetothrips* Bagnall

Bagnall, 1926a: 107. Type species: *Stenchaetothrips melanurus* Bagnall, 1926.

Head about as long as wide. One pair of anteocellar setae, equal in length to or longer than interocellar setae. Seven pairs of postocular setae. Antennae 7-segmented. Pronotum with 2 pairs of long posteroangular setae, 3 pairs of posteromarginal setae with inner pair longest; mesofurca with or without spinula, metafurca without spinula. Upper vein of forewing with several basal setae, 3 distal setae; lower vein with 10-16 evenly arranged setae. Outer margin of hind tibia without row of spines. Posteromargin of abdominal tergites and sternites with teeth of various numbers and lengths across whole posteromargin or only on laterals. Tergites V-VIII with lateral ctenidia. Ctenidia on tergite VIII located posterior to spiracles. Sternites without discal setae. Male abdominal sternites III-VII with transverse glandular area. About 40 species in the world, mainly in Asia.

Genus *Stenchaetothrips* is similar to genus *Fulmekiola*. These two genura can be separated by 1. number of postocular setae: *Stenchaetothrips* has at least 5 postocular setae, while *Fulmekiola* has only 2-3 postocular setae; 2. number and shape of posteromarginal teeth on tergites and sternites: *Fulmekiola* have complete row of large and triangle-shaped teeth, while some *Stenchaetothrips* have small teeth across the segment or only on laterals.

Anteocellar setae of *Stenchaetothrips* are longer than interocellar setae, and mesofurca has no spinula. These 2 characteristics distinguish it from some similar species of genus *Thrips*.

Key to species of *Stenchaetothrips* in Taiwan

1. Forewing uniformly brown 2
-- Forewing basal 1/4 paler than the rest or transparent 4

2. Metanotum with one pair of campaniform sensilla; posteromargin of tergites II-VII without median teeth ..... *basibrunneus*
-- Metanotum without campaniform sensilla; posteromargin of tergites II-VII with or without median teeth 3

3. Mesofurca with spinula; tergite IX with 2 pairs of campaniform sensilla; posteromargin of tergites II-VII without median teeth ..... *karnyrianus*
-- Mesofurca without spinula; tergite IX with one pair of campaniform sensilla; posteromargin of tergites II-VII with median teeth ..... *biformis*

4. Metanotum without campaniform sensilla..... *undatus*
-- Metanotum with one pair of campaniform sensilla 5

5. Mesofurca with spinula; laterals of posteromargin of tergites II –VII with about 10 teeth, pointing posteriorly ..... *brochus*
-- Mesofurca without spinula; laterals of posteromargin of tergites II-VII with lateral pointed teeth, or 4-6 small teeth, or without teeth 6

6. Posteromargin of tergites II-VII with laterally pointed teeth..... *caulis*
-- Posteromargin of tergites II-VII without teeth, or with minute teeth on laterals 7

7. Antennal segments II-IV, most of V, and a small part of VI yellow; minute teeth on laterals of posteromargin of tergites II-VII..... *minus*
-- Antennae brown, except segment III paler; posteromargin of tergites II-VII without teeth ..... *apheles*

Stenchaetothrips apheles Wang (Fig. 86)

Stenchaetothrips apheles Wang, 2000: 244-245.

Female body length 1.2 mm on slide. Brown, ocelli with red pigment. Antennae brown, except segment III and sometimes base of IV paler. Forewings brown, basal 1/4 paler; legs yellow, femora and tibia slightly brownish; major setae dark.

Head wider than long, anteocellar setae as long as interocellar setae, interocellar setae situated behind anterior ocellus, and inside lines connect outer margin of ocelli. Postocular setae pair i and pair iii in about equal length. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Metanotum with median pair of setae behind anterior margin, one pair of campaniform sensilla. Meso- and metafurca without spinula. Forewing with 7 setae on base of upper vein, 3 distal setae, 12 on lower vein, arranged evenly.

Abdominal tergites II-VII without teeth on posterior margin; tergite VIII with complete comb; tergite IX with 2 pairs of campaniform sensilla; tergite X split partially.

Male 1.0 mm on slide, body color similar to female. Abdominal tergites II-VII with laterally pointed teeth on posterior margin; comb on tergite VIII complete, but teeth situated unevenly, and directed posteriorly or laterally. Sternites III-VII with elliptic glandular area.

Distribution: Taiwan.

Habitat: *Setria palmifolia*, *Hedychium coronarium*, *Pinus* sp.

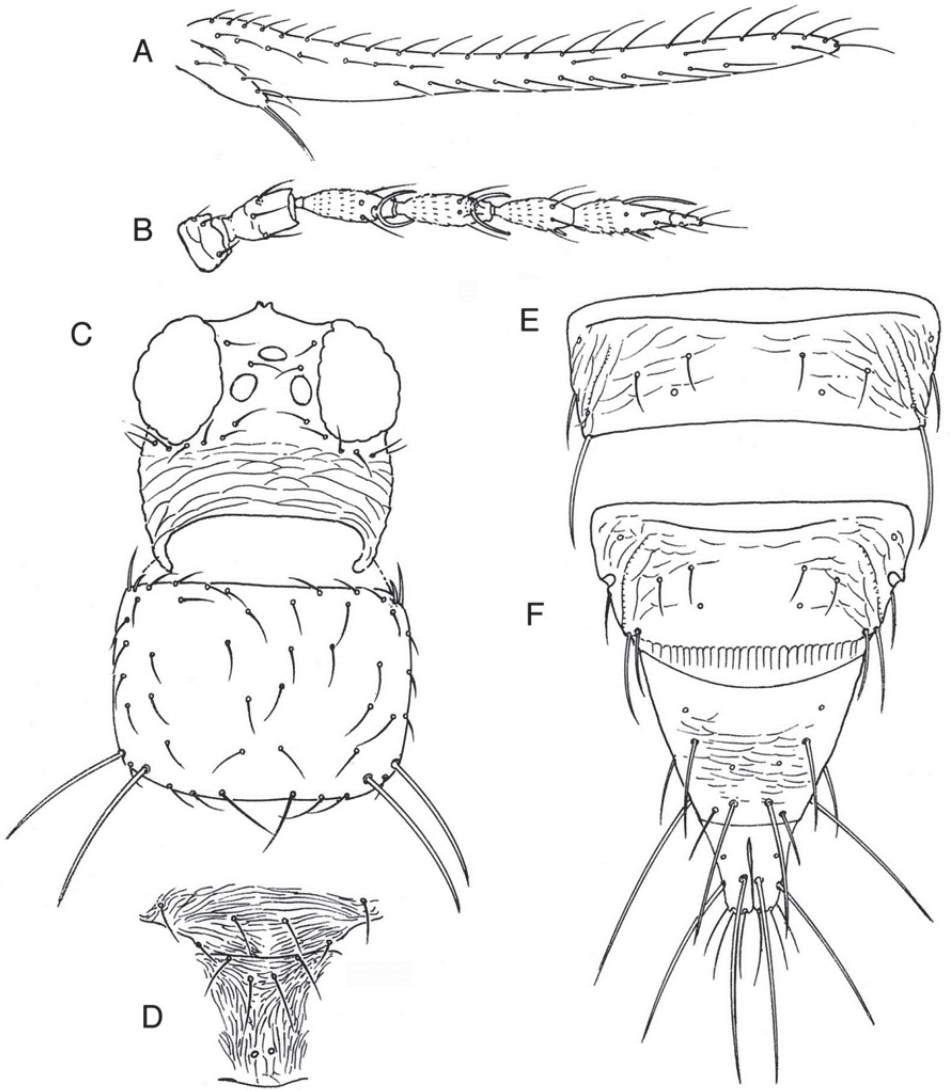

Fig. 86. *Stenchaetothrips apheles* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Stenchaetothrips basibrunneus Wang (Fig. 87)

Stenchaetothrips basibrunneus Wang, 2000: 245.

Female body length 1.1-1.2 mm on slide. Antennal segments III, IV and basal half of V yellow, the rest brown; forewing uniformly brown; femora brown, tibia and tarsi yellow; major setae dark.

Head wider than long, interocellar setae situated behind anterior ocellus, and inside lines connect outer margin of ocelli. Postocular setae pair iii slightly longer than pair i. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum with median pair of setae behind anterior margin, one pair of campaniform sensilla present. Spinula on meso- and metafurca absent. Forewing with 7 setae on base of upper vein, 3 distal setae, and 13 setae on lower vein, arranged evenly.

Abdominal tergites II-VII without teeth along posterior margin, only on extreme sides with incipient teeth; comb on tergite VIII complete; tergite IX with 2 pairs of campaniform sensilla; tergite X split except the extreme base.

Male unknown.

Distribution: Taiwan.

Habitat: *Bamboo* sp., *Bambusa stenostachya*.

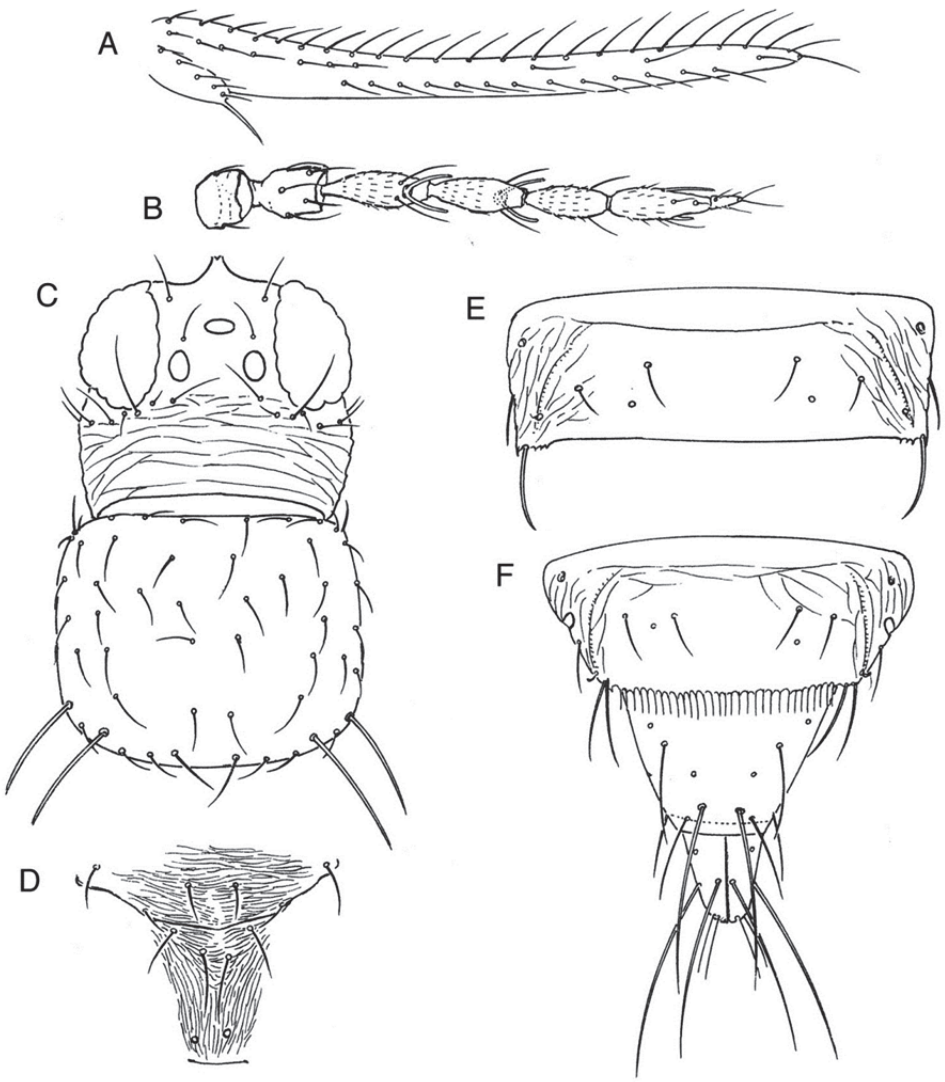

Fig. 87. *Stenchaetothrips basibrunneus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Stenchaetothrips biformis (Bagnall) (Fig. 88)

Paddy thrips

Bagnallia biformis Bagnall, 1913a: 237.
Thrips (Bagnallia) oryzae Williams, 1916b: 353.
Thrips biformis (Bagnall), Priesner, 1925a: 149.
Thrips holorphnus Karny, 1925: 15, 55.
Chloethrips oryzae (Williams); Bhatti, 1962b: 42.
Thrips dobrogensis Knechtel, 1964: 375.
Baliothrips biformis (Bagnall); Mound et al, 1976: 22.
Chloethrips holorphnus (Karny); Ananthakrishnan & Jagadish, 1967: 375, 388.
Stenchaetothrips biformis (Bagnall); Bhatti & Mound, 1980: 14.

Female body length 1.0-1.3 mm on slide. Brown, ocelli with red pigment; antennal segments I and II brown, with distal end of II paler; III and IV light yellow, with distal end of IV darker; base of V light yellow, the rest of V and other segments dark brown. Forewings uniformly grayish brown; fore femora grayish brown or light yellow, fore tibiae and mid and hind femora and tibiae light yellow with grayish brownish margin, tarsi light yellow.

Head wider than long, one pair of long anteocellar setae, interocellar setae situated outside of ocellar triangle, shorter than anteocellar setae, and also shorter than the longest postocular setae. Postocular setae pair iii obviously longer than pair i. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum with median pair of setae behind anterior margin, without campaniform sensilla. Spinula on meso- and metafurca absent. Forewing with 7 setae on base of upper vein, 3 distal setae; 11-13 setae on lower vein, arranged evenly except the distal one a little further apart from the others.

Abdominal tergites II-VII with teeth on laterals of posterior margin, teeth on tergites II-IV inconspicuous, on tergites V and VI minute, on tergite VII obvious; comb on tergite VIII complete, teeth sparse and arranged irregularly; tergite IX with 1 pair of campaniform sensilla; tergite X split except the extreme base. Pleurites II-VII with posteromarginal teeth. Posteromarginal teeth on sternites II-VII more obvious than those on tergites.

Male shape and color similar to female, but smaller. Abdominal tergites II-VII with posterolateral teeth, laterally directed; tergite VIII with complete comb. Sternites III-VII with transverse glandular area, these areas shorter on the posterior segments.

Distribution: Taiwan, Japan, Philippines, Vietnam, Thailand, Malaysia, Indonesia, India, Pakistan, Brazil, Romania, UK.

Habitat: *Oryza sativa*, *Brachiaria muitca*, *Phyllostachys pubescens*, *Euphorn longana*, *Saccharum sinensis*, and grasses.

Remarks: There are morphological variations. Number of discal setae on pronotum varied from sparse to dense; pronotal posteromargin has 3 pairs of setae, occasionally 4 pairs; mesofurca usually without spinula, few individuals have spinula; forewing upper vein with 3 distal setae, rarely, with 2 or 4 setae; number and shape of posteromarginal teeth varied, few individuals even lacking such teeth. This species is a pest of paddy rice. Both larvae and adults damage young leaves at seedling stage.

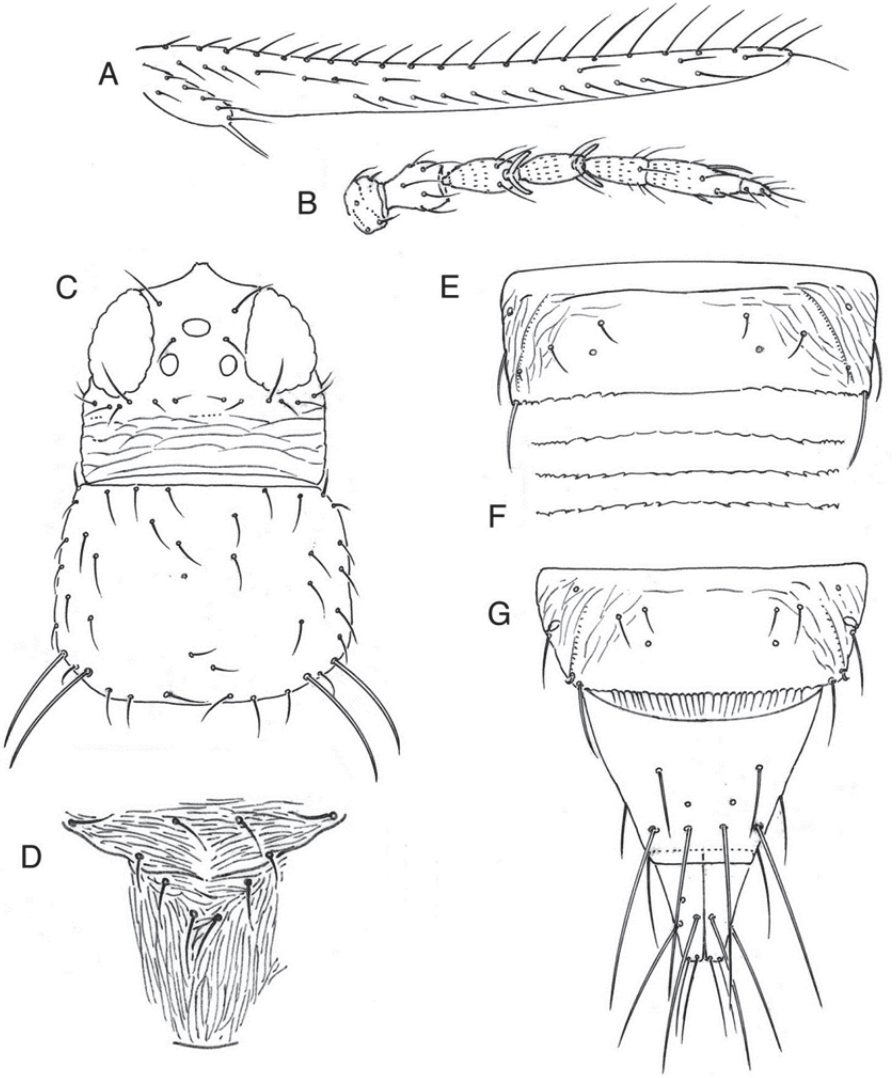

Fig. 88. *Stenchaetothrips biformis* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII and various forms of posterior margin; F. tergites VIII-X.

Stenchaetothrips brochus Wang (Fig. 89)

Stenchaetothrips brochus Wang, 2000: 247-248.

Female body length 1.3-1.4 mm on slide. brown, ocelli with red pigment; antennal segment III and distal end of II yellow, the rest segments brown; forewings brown except basal 1/4 in lighter color; legs yellow, femora shaded with brown; major setae dark.

Head wider than long, interocellar setae situated behind anterior ocellus, and inside lines connect outer margin of anterior and posterior ocelli. Postocular setae pair i in about same length as pair iii. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum with median pair of setae behind anterior margin, one pair of campaniform sensilla present. Mesofurca with spinula, and metafurca without spinula. Forewing with 7 setae on base of upper vein, 3 distal setae, and 12 setae on lower vein, arranged evenly.

Abdominal tergites II-VII with11-12 teeth on each lateral side; comb on tergite VIII complete; tergite IX with 2 pairs of campaniform sensilla; tergite X split except the extreme base.

Male body length 1.1 mm on slide. Thorax yellow; antennal segments I and II grayish brown, III and base of IV yellow, the rest brown. Posterolaterals of abdominal tergites II-VII with posteriorly directed teeth. Comb only on laterals of tergite VIII, lacking in median. Sternites III-VII with elliptical glandular area.

Distribution: Taiwan.

Habitat: *Bamboo* sp., *Imperata cylindrical*, grasses.

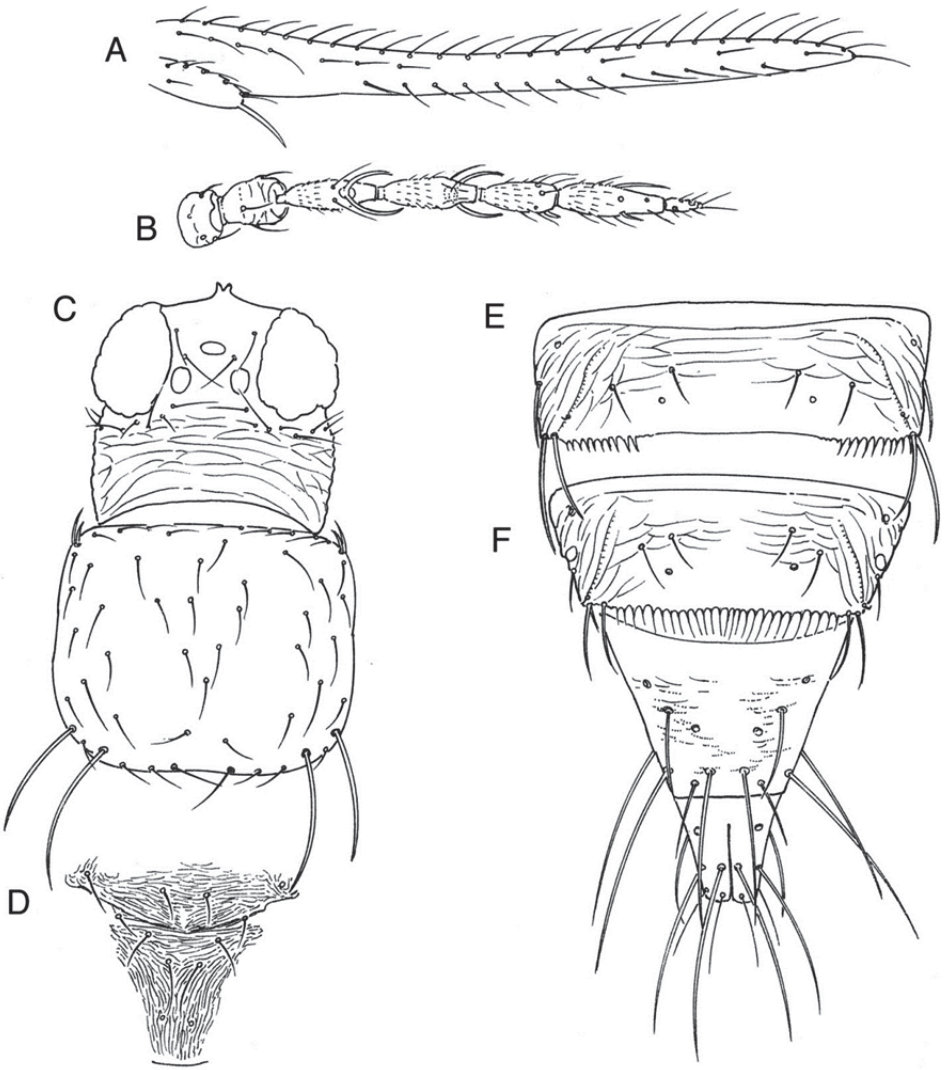

Fig. 89. *Stenchaetothrips brochus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Stenchaetothrips caulis Bhatti (Fig. 90)

Stenchaetothrips caulis Bhatti, 1982: 401-403.

Female body length 1.1-1.3 mm on slide. Brown, ocelli with red pigment; antennal segment I brown, II and III and base of IV and V light yellow, the rest of segments brown; forewings light brown except basal 1/4 light yellow; femora light brown, tibiae and tarsi light yellow.

Head wider than long, interocellar setae as long as anteocellar setae, situated behind anterior ocellus, and outside lines connect outer margin of anterior and posterior ocelli. Postocular setae pair i in about same length as pair iii. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum with one pair of campaniform sensilla. Meso- and metafurca without spinula. Forewing with 10 setae on base of upper vein, 3 distal setae, and 11-13 setae on lower vein, arranged evenly.

Posteromargin of abdominal tergites serrated; tergites V-VII with laterally directed teeth; comb on tergite VIII complete; tergite IX with 2 pairs of campaniform sensilla; tergite X split except the extreme base. Sternites II-VII with irregular teeth.

Male shape and color similar to female, but smaller. Abdominal tergites II-VII with posterolateral teeth, laterally directed; tergite VIII with complete comb. Sternites III-VII with transverse glandular area, these areas shorter on the posterior segments.

Distribution: Taiwan, India.

Habitat: *Phyllostachys caulis, Pinus* sp., and grasses.

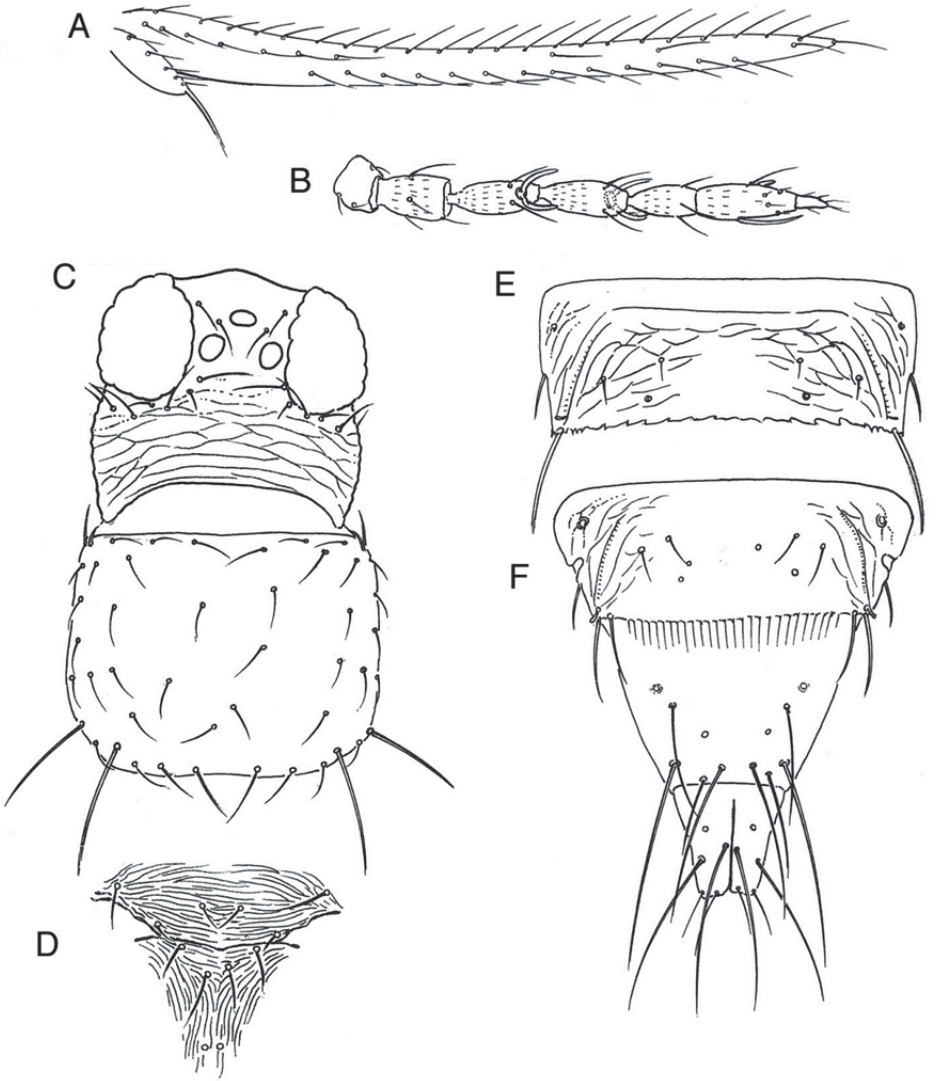

Fig. 90. *Stenchaetothrips caulis* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Stenchaetothrips karnyianus (Priesner) (Fig. 91)

Thrips karnyianus Priesner, 1934: 282, 289.
Stenchaetothrips karnyianus (Priesner); Bhatti & Mound, 1980: 15.

Female body length 1.2-1.4 mm on slide. Head and thorax brown, abdomen dark brown; ocelli with red pigment; antennae brown, except segment III with yellow base and light brown distal end; forewings uniformly brown; femora with inner margin yellowish and outer margin brownish; fore and mid tibiae light yellowish brown, hind tibiae light yellow, tarsi light yellow.

Head wider than long, interocellar situated behind anterior ocellus, and inside lines connect outer margin of anterior and posterior ocelli. Postocular setae pair iii longest. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum without campaniform sensilla. Only mesofurca with spinula. Forewing with 9 setae on base of upper vein, 3 distal setae, and 12 setae on lower vein, arranged evenly.

Abdominal tergites II-VII with 3-5 minute, laterally directed teeth; comb on tergite VIII complete; tergite IX with 2 pairs of campaniform sensilla; tergite X split except the extreme base.

Male unknown.

Distribution: Taiwan, Indonesia.

Habitat: *Rhapis humilis*.

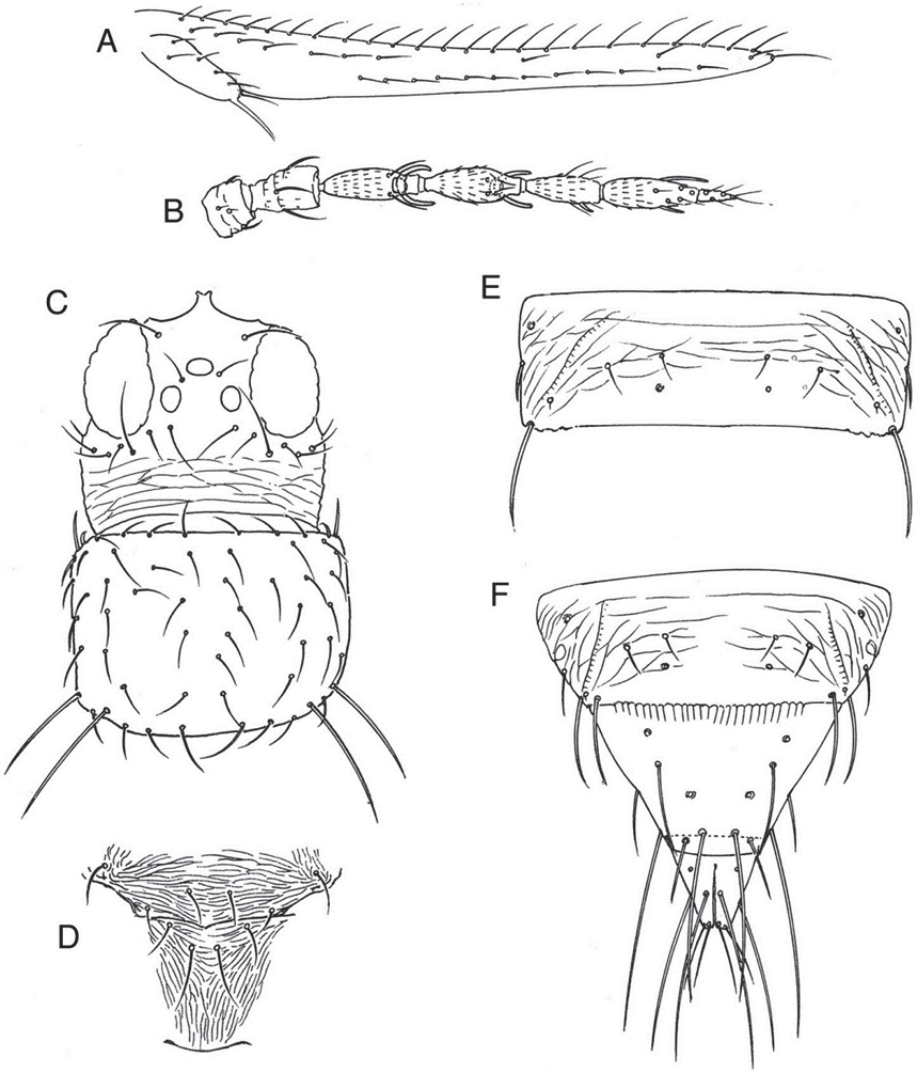

Fig. 91. *Stenchaetothrips karnyianus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Stenchaetothrips minutus (van Deventer) (Fig. 92)

Sugarcane thrips

Thrips minutus van Deventer, 1906: 276, 281.
Thrips saccharoni Moulton, 1928a: 111, 132.
Fulmekiola saccharicida Ramakrishna & Margabandhu, 1939a: 23.
Chloethrips minutus (van Deventer); Bhatti, 1962b: 42.
Chloethrips sacchariciduss (Ramakrishna & Margabandhu); Bhatti, 1962b: 42.
Mictothrips sacchariciduss (Ramakrishna & Margabandhu); Ananthakrishnan, 1969: 119, 128.
Baliothrips minutus (van Deventer); Bhatti, 1969b: 375.
Stenchaetothrips minutus (van Deventer); Bhatti & Mound, 1980: 16.

Female body length 1.1 mm on slide. Head and thorax yellowish brown, abdomen dark brown; antennae light yellow, segment I, base of II, distal 1/4 of V, distal 2/3 of VI and VII light brown; forewings light brown, basal 1/4 light yellow; legs light yellow.

Head wider than long, one pair of anteocellar setae, interocellar situated behind anterior ocellus, outside of lines connect outer margin of anterior and posterior ocelli. Postocular setae pair iii longer than pair i. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum with one pair of campaniform sensilla. Meso- and metafurca without spinula. Forewing with 8 setae on base of upper vein, 3 distal setae, and 10-12 setae on lower vein, arranged evenly.

Posterolaterals of abdominal tergites VI-VII with minute, laterally directed teeth; comb on tergite VIII complete; tergite IX with 2 pairs of campaniform sensilla; tergite X split except the extreme base.

Male bicolored, head and thorax yellow, abdomen brown; antennae light yellow, except distal ends of segments V and VI, and VII light brown; abdominal tergite VII with posteromarginal

teeth, laterally directed; tergite VIII with complete comb, directions and positions of teeth irregular. Sternites III-VII with transverse glandular areas.

Distribution: Taiwan, India, Indonesia, Japan, Hawaii, Papua New Guinea, Brazil.

Habitat: *Saccharum sinensis*, *Panicum* sp., *Saccharum spontanum*, *Zea mays*, *Lantana camara*, *Phragmites communis*, *Zizyphus mauritiana*, grasses.

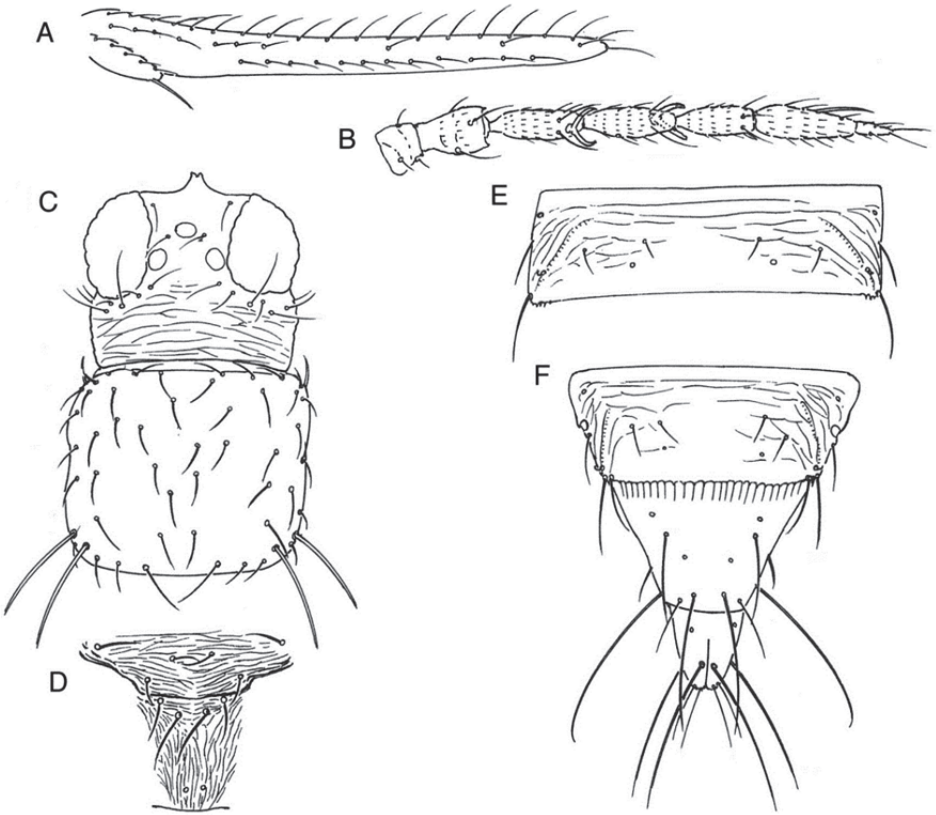

Fig. 92. *Stenchaetothrips minutus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Stenchaetothrips undatus Wang (Fig. 93)

Stenchaetothrips undatus Wang, 2000: 250-251.

Female body length 1.2-1.3 mm on slide. Bicolored, head and abdomen brown, thorax yellow, ocelli with red pigment; antennal segments I-V yellow, distal end of V brown, VI brown or basal half yellow, VII brown; forewings brown with basal 1/4 in lighter color; legs yellow; major setae dark.

Head wider than long, one pair of anteocellar setae, interocellar situated behind anterior ocellus, inside of lines connect outer margin of anterior and posterior ocelli. Postocular setae pair i as long as pair iii. Transverse striae behind eyes. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum as long as head. Metanotum without campaniform sensilla. Meso- and metafurca without spinula. Forewing with 7 setae on base of upper vein, 3 distal setae, and 10-13 (mostly 11) setae on lower vein, arranged evenly.

Posteromargin of abdominal tergites VI-VII with blunt teeth, or laterally directed teeth; comb on tergite VIII complete; tergite IX with 2 pairs of campaniform sensilla; tergite X split except the extreme base.

Male 1.1 mm on slide. Bicolored, head and thorax yellow, abdomen all brown, or the anterior segments yellow, posterior segments brown; posteromargin of abdominal tergite II-VII with laterally directed teeth; tergite VIII with complete comb, median teeth directed posteriorly, lateral teeth without a stable direction. Sternites III-VII with circular glandular areas.

Distribution: Taiwan.

Habitat: *Phragmites communis*, *Bamboo* sp., *Alpinia speciosa*, *Melastoma candidum*, grasses.

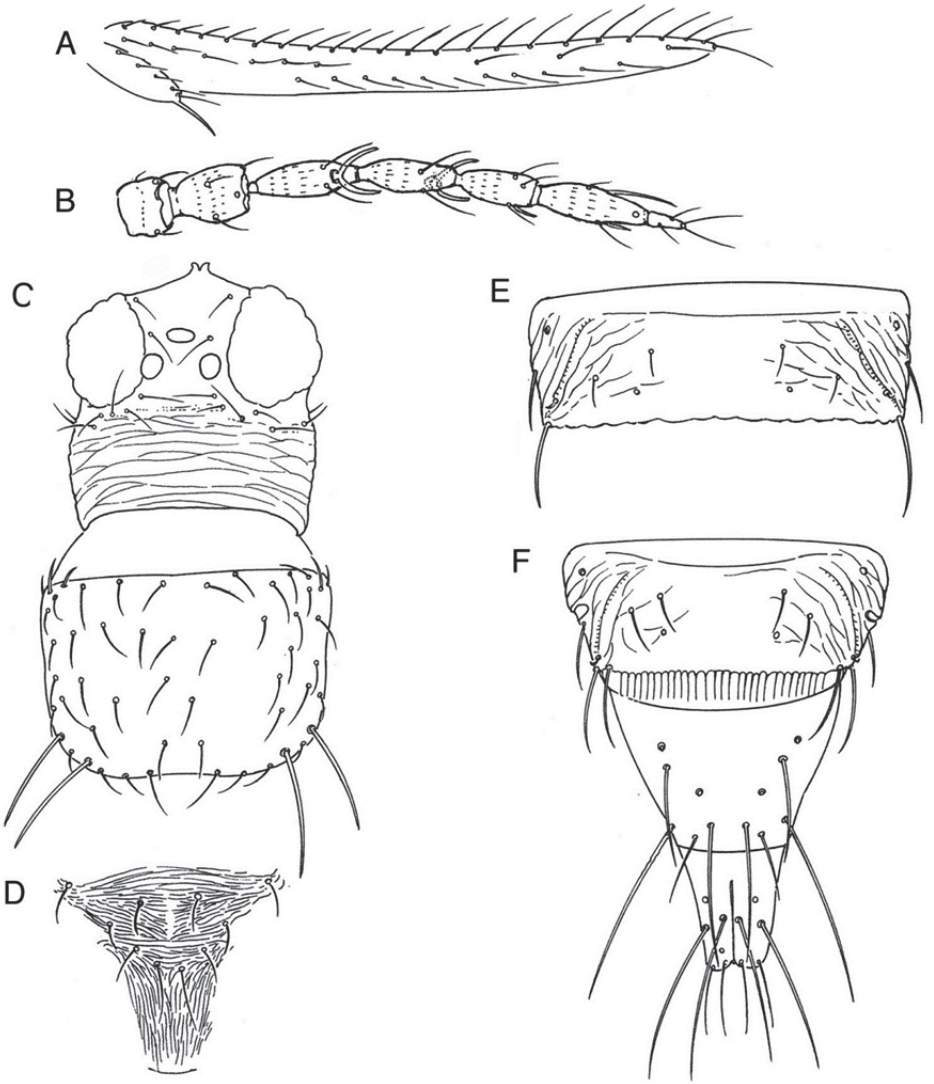

Fig. 93. *Stenchaetothrips undatus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergite VII; F. tergites VIII-X.

Genus *Taeniothrips* Amyot & Serville

Amyot & Serville, 1843: 644. Type species: *Thrips primulae* Haliday, 1836.

Vertex of head slightly produced, one pair of anteocellar setae, interocellar setae longer than anteocellar setae. Antennae 8-segmented. Two pairs of long setae on posteroangulars, 3 pairs of posteromarginal inner setae, middle pair longest. Forewing upper vein with several basal setae, 3 distal setae wide apart, lower vein setae arranged evenly. Abdominal tergites V-VII without lateral ctenidia; comb of tergite VIII complete.

This genus was greater and with more than 180 species previously. Along with the related taxonomic studies, the members restricted to about 20 species now.

Taeniothrips eucharii (Whetzel) (Fig. 94)

Physothrips eucharii Morgan; Whetzel, 1923: 30-37.
Taeniothrips gracilis Moulton, 1928c: 289.
Taeniothrips rohdeae Kurosawa, 1937: 273.
Taeniothrips eucharii (Whetzel); O'Neill, 1963: 399.
Taeniothrips congnaticeps Priesner, 1935, n. sym.

Female body length 1.2-1.6 mm on slide. Brown with red pigment; antennae brown, except distal 1/3 of III and basal ring of IV and V in lighter color; forewings brown; hind femora and tibiae dark brown, distal end of tibiae light yellow, tarsi light yellow.

Head wider than long, cheeks convex but constricted behind eyes, about same length as eyes. Transverse striae behind eyes. Interocellar setae long, situated inside ocellar triangle, between front margin of 2 posterior ocelli. Antennae 8-segmented, segments III and IV with forked sense cone.

Metanotum with one pair of campaniform sensilla. Mesofurca with spinula, metafurca without spinula. Forewing upper vein with 8-9 basal setae, one median setae, 2 distal setae; lower vein with 10-13 setae.

Abdominal tergite VIII with several microtrichia in front of spiracles, comb long and complete; tergite IX with 2 pairs of sense pores; tergite X partially split. Sternites without discal setae.

Male color and shape similar to female. Antennal segment III grayish brown, the rest segments brown. Tergite IX with one pair of long median setae; submedian setae short, only about 1/10 the length of the former, thorn-like. Sternites III-VII with obvious transverse glandular area.

Distribution: Taiwan, China, Japan, Korea, Hawaii, Bermuda.

Habitat: *Helichrysum bracteatum*, *bean*, *Lamium albrum*, *Teucrum* sp., *Fabaceae*, *Rohdea japonica*, *Hymenocallis declinata*, *Crinum asiaticum*, *Amaryllis equestre*, *Freesia* x *hybrid*, *Dianthus* sp., *Lycoris radiate*, *Narcissus tazetta*, *Lilium* sp., *Dianthus chinensis*, *Hibiscus syriaeus*, *Antirrhinum majus*.

Remarks: There are five Takahashi's slides with 10 female specimens labeled as *T. cognaticeps* in TARI, including two topotypes collected on 18-V-1933, the same place, plants and date as holotype. The topotypes cannot be separated from *T. eucharii* by authors' examination. *T. cognaticeps* hence is suggested synonym of *T. eucharii.*

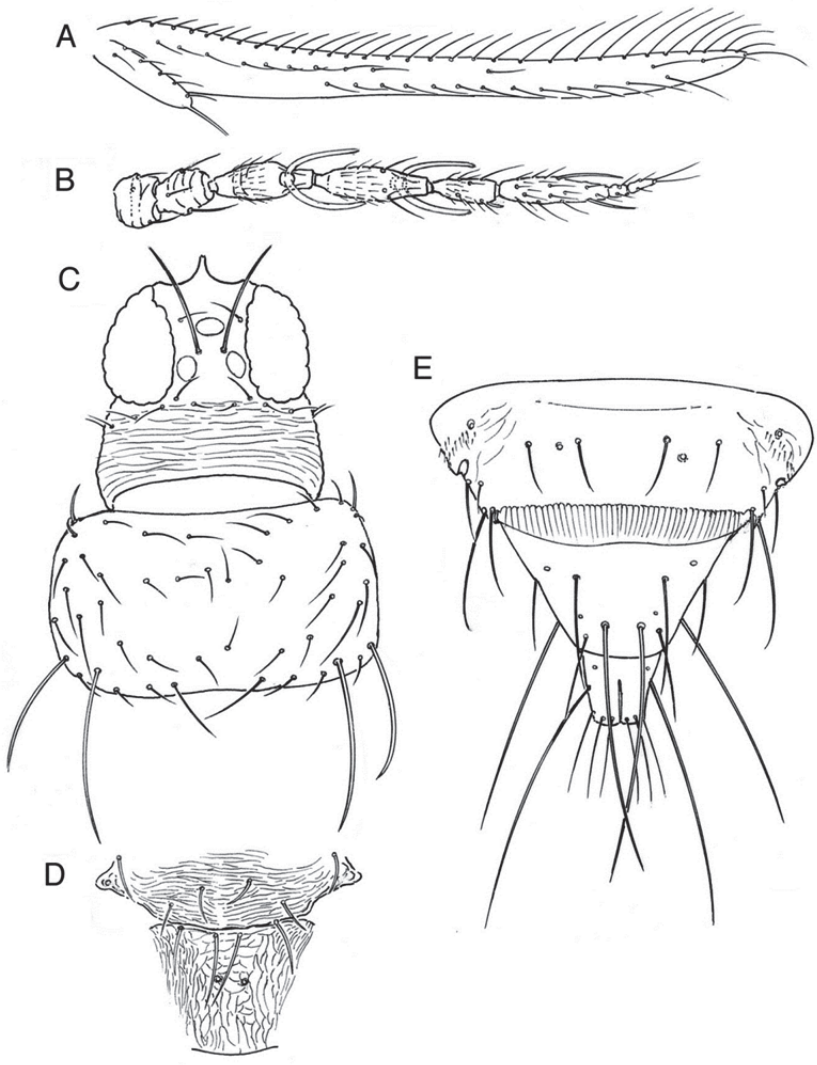

Fig. 94. *Taeniothrips eucharii* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VIII-X.

Taeniothrips oreophilus Priesner (Fig. 95)

Taeniothrips oreophilus Priesner, 1935b: 355.

Female body length 1.7 mm on slide. Brown, without or with few red pigment; antennal segments I and II dark brown, III light yellow, basal 1/3 of IV and of V light yellow and distal portions brown, VI-VIII brown; forewings brown, with a basal transparent area, median area in lighter color than both sides; femora brown, fore and mid tibiae light yellow or yellow with margins darker, hind tibiae light yellow, tarsi light yellow.

Head longer than wide. Cheeks convex, slightly constricted behind eyes, about same length as eyes. Transverse striae behind eyes. Interocellar setae long, situated inside ocellar triangle, between front margin of 2 posterior ocelli. Antennae 8-segmented, segments III and IV with forked sense cone.

Metanotum with one pair of campaniform sensilla. Mesofurca with spinula, metafurca without spinula. Forewing upper vein with 9-10 basal setae, one median setae, 2 distal setae; lower vein with 13-16 setae.

Abdominal tergite VIII with several microtrichia in front of spiracles, comb long and complete; tergite IX with 2 pairs of sense pores; tergite X partially split. Sternites without discal setae.

Male unknown.

Distribution: Taiwan, Japan.

Habitat: *Cupressus funebris*.

Remarks: This species is similar to *T. eucharii* in body structure and chaetomorpha. These two species can be distinguished by the color of antennal segments III-V. Besides, color in base of forewing are different, *euccharii* has grayish brown base, while it is completely transparent with *oreophilus*.

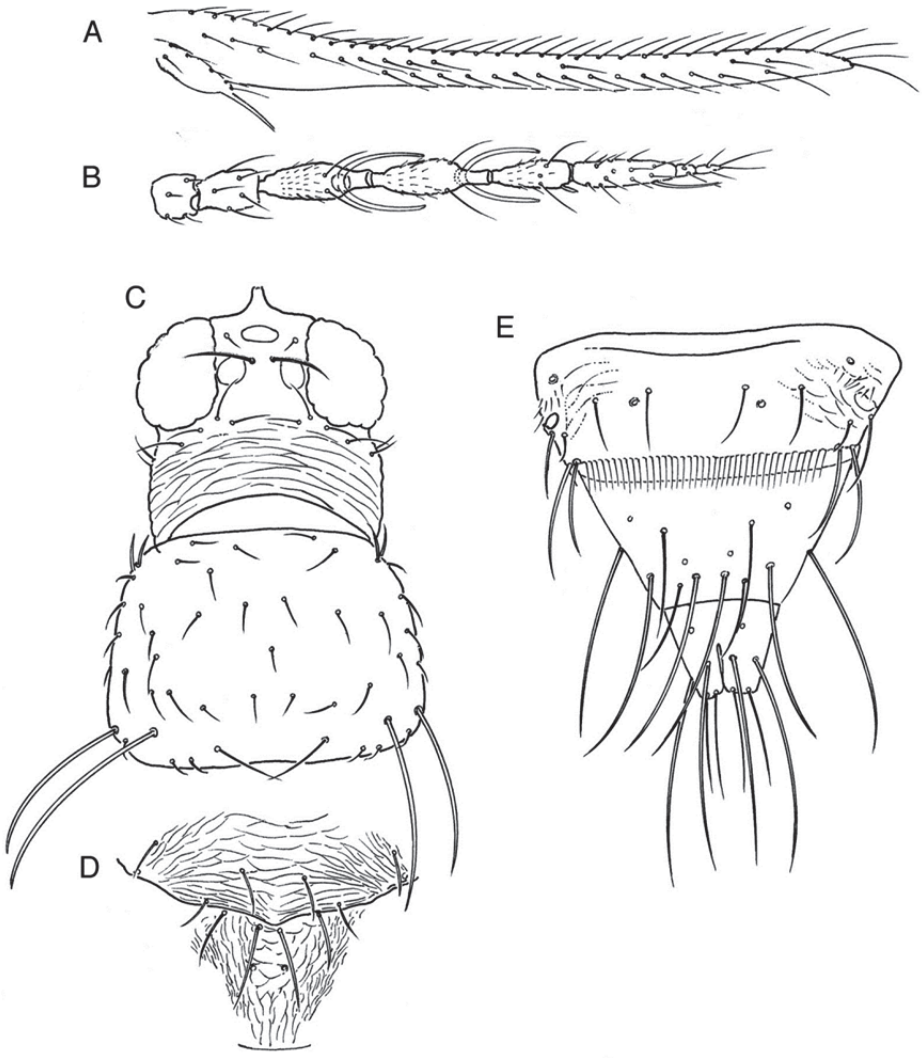

Fig. 95. *Taeniothrips oreophilus* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VIII-X.

Genus *Thrips* Linne

Thrips Linne, 1758: 343, 357. Type species: *Thrips physapus* Linne, 1810.

Head often wider than long, or as long as wide. One pair of anteocellar setae, interocellar setae a little longer than anteocellar setae or postocular setae. Antennae 7- or 8-segmented, segments III and IV with forked sense cone, III-VI with microtrichia. Two pairs of long setae on posterior angulars of pronotum; 3 pairs (sometimes 4 or 5 pairs) of inner marginal setae. Mesofurca with spinula, metafurca spinula absent. Forewing upper vein with 7-10 basal setae, 2-7 distal setae, these distal setae either widely separated or arranged almost evenly; lower vein setae arranged evenly as a complete row. Abdominal tergites V-VIII with lateral ctenidia. Ctenidia on tergite VIII situated behind spiracle. Sternite II with 2 pairs of posteromarginal setae, sternites III-VII with 3 pairs of posteromarginal setae; sternites with or without discal setae.

This is the largest genus of Suborder Terebrantia, about 250 species in the world, 18 species in Taiwan. Some species are pests of agricultural crops.

Key to species of *Thrips* in Taiwan

1. Abdominal sternites III-VI with discal setae 2
-- Abdominal sternites without discal setae.....13

2. Abdominal sternte VII with discal setae.....3
-- Abdominal sternite VII without discal setae.....11

3. Abdominal tergite VIII with complete and well-developed comb 4
-- Abdominal tergite VIII without comb, or with comb only on laterals, or only serrated medially 8

4. Body yellow or light yellow, median of abdominal tergites with brown areas..... 5
-- Body brown, abdominal tergites in uniform color..... 6

5. Interocellar setae situated on margin of ocellar triangle; abdominal brown areas not reaching posterior margins of tergites, triangle-shaped ..... *inferus*
-- Interocellar setae situated out of ocellar triangle; abdominal brown areas reaching posterior margins of tergites, rectangle-shaped..... *coloratus*

6. Metanotum with median reticulations; forewing upper vein with 6-8 distal setae ..... *simplex*
-- Metanotum without median reticulations; forewing upper vein with 3 distal setae 7

7. Body brown; postocular setae pair ii shorter than pair iii; abdominal sternite VII with 8-12 discal setae ..... *florum*
-- Body bicolored or brown; postocular setae pair ii longer than, or equal to pair iii; abdominal sternite VII with 11-23 discal setae..... *hawaiiensis*

8. Forewing upper vein with 3 distal setae, widely separated..... 9
-- Forewing upper vein with at least 4 distal setae..... 10

9. Median pair of setae of metanotum situated on anterior suture, I pair of campanium sensilla; median of posterior margin of tergite VIII without comb..... *kotoshoi*
-- Median pair of setae of metanotum situated behind anterior suture, without campaniform sensilla; posterior margin of tergite VIII with comb..... *alliorum*

10. Abdominal tergite VIII without comb..... *wedeliae*
-- Abdominal tergite VIII with comb on laterals, lacking in median ..... *vitticornis*

11. Forewing upper vein with 2-3 distal setae, widely separated ..... *extensicornis*

-- Forewing upper vein setae evenly arranged, 8 or more distal setae almost continuous with basal setae 12

12. Comb on abdominal tergite VIII only on laterals, lacking in median ..... *orientalis*
-- Abdominal tergite VIII without comb ..... *taiwanus*

13. Metanotum with obvious median reticulations; comb on tergite VIII lacking in median ..... *malloti*
-- Metanotum without reticulations; comb on tergite VIII complete 14

14. Pronotum, mesonotum and metanotum with brown spots; abdominal tergites II-VII with anterior brown bands ..... *nigroilosus*
-- Pronotum, mesonotum and metanotum without brown spots; abdompinal tergites II-VII may with brown anterior ridges, but never with brown bands 15

15. Forewing upper vein with 4-5 distal setae; posterolaterals of abdominal tergite II-VII with tiny comb ..... *tabaci*
-- Forewing upper vein with 3 distal setae; posterolaterals of abdominal tergite II-VII without comb..... 16

16. Body brown; metanotum with one pair of campanoform sensilla; antennal segments IV and V brown, except base of IV lighter ..... *formosanus*
-- Body light yellow; metanotum without campaniform sensilla; antennal segments IV and V bicolored 17

17. Interocellar setae situated outside of ocellar triangle, on both sides of anterior ocellus ..... *palmi*
-- Interocellar setae situated inside ocellar triangle, posterior to anterior ocellus ..... *flavus*

Thrips alliorum (Priesner) (Fig. 96)

Taeniothrips alliorum Priesner, 1935a: 128.
Taeniothrips carteri Moulton, 1936b: 183.
Thrips alliorum (Priesner); Umeya, 1988: 142, 143.

Female body length 1.5-1.7 mm on slide. Brown, antecostal ridges of abdominal tergites II-VIII dark brown; antennal segments I, II and IV-VIII dark brown, III light yellow or grayish brown; forewings light yellow, basal area paler; femora brown, fore tibiae light yellow, mid and hind tibiae brown with distal end yellow, tarsi yellow.

Head as long as wide, cheeks almost parallel, longer than eyes. Interocellar setae quite long, situated on, or inside, lines connect outer margins of anterior and posterior ocelli. Six pairs of postocular setae, 2 setae behind posterior ocellus arranged in a straight line. Antennae 8-segmented, III and IV with forked sense cone.

Pronotum smooth, with only several fine striae near posterior margin; one pair of setae on anterior angles; 6 pairs of short setae on anterior margine; 2 pairs of long setae on posteroangulars, one short setae between them; 3 pairs of setae on posterior margin, the median pair longest; about 20 discal setae. metanotum with dense striae, median pair of setae situated behind anterior suture, no canmaniform sensilla. Forewing with 22-25 costal setae; upper vein with 7 basal setae, 3 distal setae; lower vein with 11 setae.

Posteromargin of tergites II-VII dash-line-like, conspicuous on tergites VI and VII; posteromargin of tergite VIII with irregular comb; tergite X split completely. Sternites II-VII with faint transverse striae; III-VII with 8-14 discal setae. Epipleurites II-VII with posteromarginal teeth. Sternites III-VII with discal setae, arranged approximately in a transverse row.

Male (brachypterous or apterous) similar to female but smaller, sternites III-VII with transverse glandular area.

Distribution: Taiwan, China, Japan, Korea, Hawaii.

Habitat: *Allium fistulosum*, *Allium odorum*, *Allium rosenbachianum*.

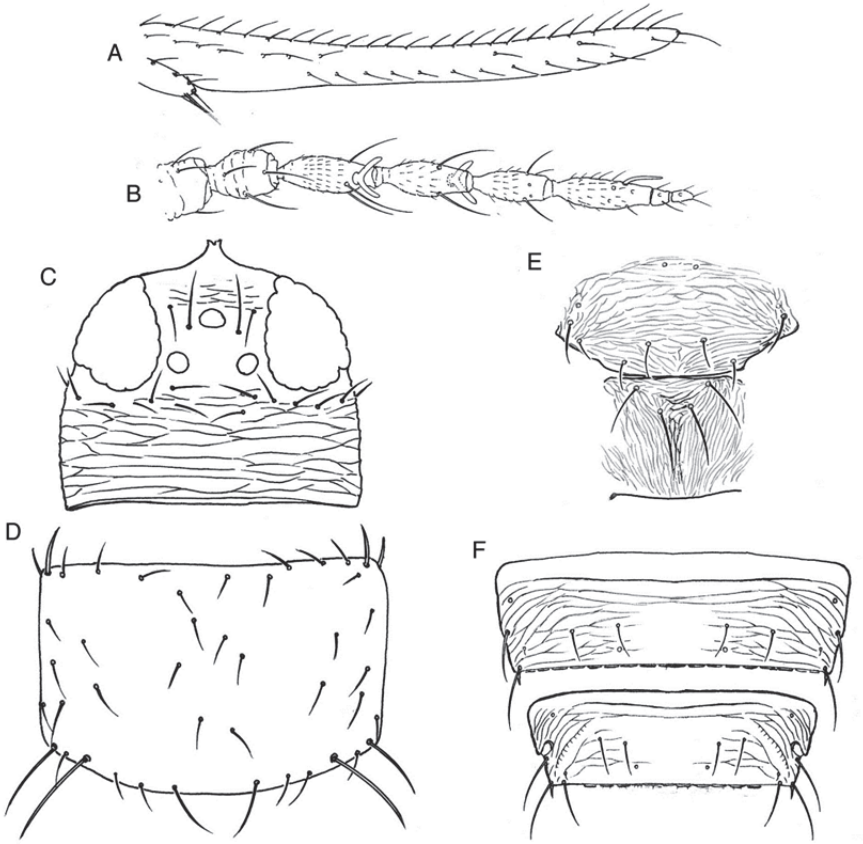

Fig. 96. *Thrips alliorum* (♀) A. forewing; B. antenna; C. pronotum; D. meso- and metanotum; E. tergites VII and VIII.

Thrips coloratus Schmutz (Fig. 97)

Thrips coloratus Schmutz, 1913: 1002, 1013.
Thrips japonicus Bagnall, 1914b: 288.
Thrips florum var. *colorata* Schmutz; Karny, 1924: 13, 14.
Thrips melanurus Bagnall, 1926a: 111.

Female body length 1.1-1.3 mm on slide. Head and thorax yellowish brown, abdominal tergites II-VIII light yellow with median area brown, tergites IX and X brown, antecostal ridges on tergites II-VIII dark brown; antennal segments I and III light yellow, II golden yellow, IV-VII brown except base of IV and basal 1/2 of V paler; forewings grayish brown; legs light yellow.

Head wider than long, cheeks slightly longer than eyes. Interocellar setae situated between anterior and posterior ocelli, outside of ocellar triangle; 6 pairs of postocular setae. Transverse striae behind eyes. Antennae 7-segmented, III and IV with forked sense cone.

Pronotum smooth, with only several fine striae near posterior margin; 2 pairs of long setae on posteroangulars, one short setae between them; 3 pairs of setae on posterior margin, the median pair longest; about 40 discal setae. Metanotum with dense striae, median pair of setae situated behind anterior suture, no canmaniform sensilla. Forewing with 24-28 costal setae; upper vein with 7-8 basal setae, 3 distal setae; lower vein with 12-16 setae.

Posterior comb on tergite VIII complete; tergite X split except base. Sternites II-VII with 6-10 discal setae.

Male yellow, antennal segments I-III, basal 1/2 of IV and basal 3/4 of V yellow, rest brown; sternites III-VII with transverse glandular area.

Distribution: Taiwan, China, Japan, India, Sri Lanka, Indonesia, New Guyana.

Habitat: This species was found on flowers of various plants, including *Camellia* sp.,

Gomphrena globosa, Beloperone guttata, Prunus campanulata , *Prunus mume, Firmiana simplex, Bamboo* sp., *Corchorus capsularis.*

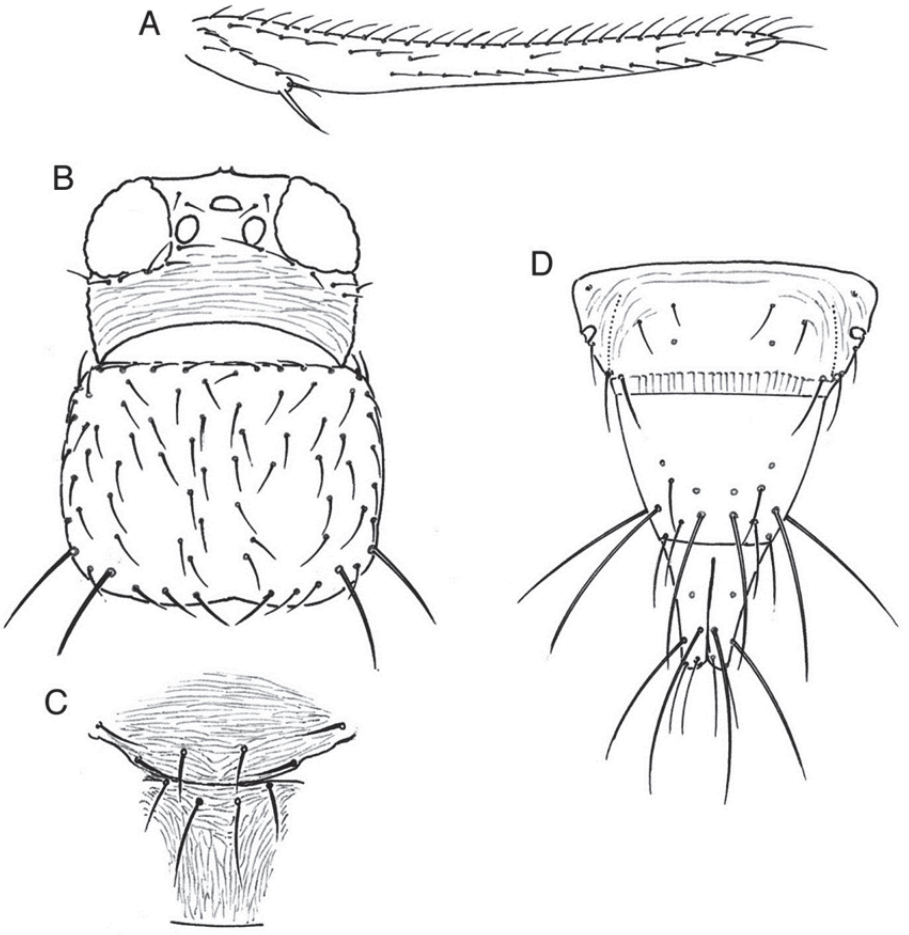

Fig. 97. *Thrips coloratus* (♀) A. forewing; B. head and pronotum; C. meso- and metanotum; E. tergites VIII-X.

Thrips extensicornis Priesner (Fig. 98)

Thrips extensicornis Priesner, 1934: 276, 288.

Female body length 1.2 -1.3 mm on slide. General color dark brown, head yellowish brown near vertex and brown in postocular region; thorax orange yellow; abdomen brown, tergites II-VIII with dark brown antecostal ridge. Antennal segment I grayish brown, II with dark base and paler apex, III and base of IV pale yellow, rest of IV and V-VII brown; forewing brown, paler at base; legs grayish brown, femora darker.

Head wider than long, cheeks slightly arched, shorter than eyes. Transverse striae behind eyes. Interocellar setae situated behind anterior ocellus, inside ocellar triangle. Six pairs of postocular setae. Antennae 7-segmented, III and IV with forked sense cone, VI longest.

Pronotum with 5 pairs of anterior marginal setae, 2 pairs of long setae on posteroangulars, in about equal length, 3 pairs of posterior marginal setae, median pair longest, about 20 discal setae. Metanotum with obvious reticulated sculpture, reticulations on anterior half with wrinkles inside, median pair of setae situated behind anterior suture, no canmaniform sensilla. Forewing upper vein with 7 basal setae, 3 distal setae; lower vein with 12-16 setae.

Posterior comb on tergite VIII complete; tergite X split partially. Sternites V and VI with one pair of discal setae on laterals, other sternites without discal setae. Epipleurites II-VII with posterior marginal teeth.

Male orange yellow, color of antennae similar to female but paler, and distal half of III brown. Sternites with transverse glandular area, without discal setae.

Distribution: Taiwan, Indonesia.

Habitat: *Crinum asiaticum*.

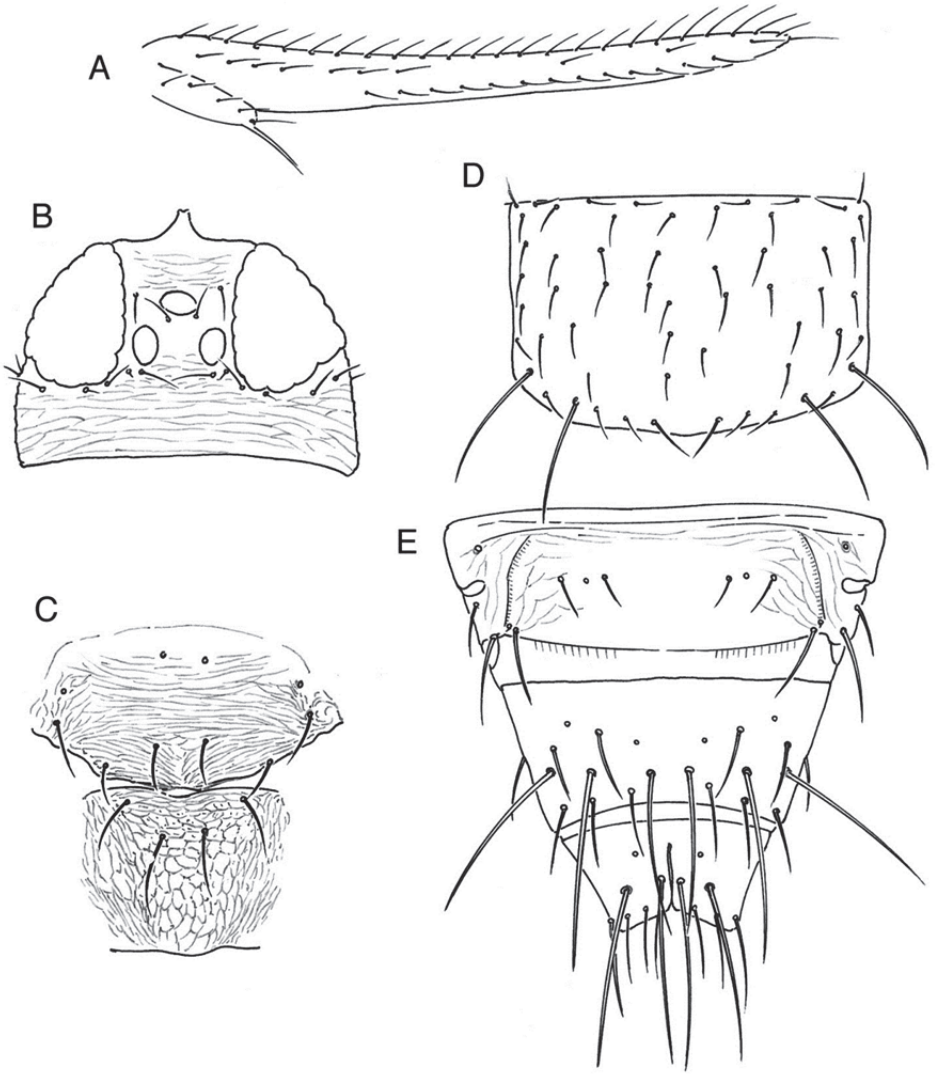

Fig. 98. *Thrips extensicornis* (♀) A. forewing; B. head; C. meso- and metanotum; D. pronotum; E. tergites VIII-X.

Thrips flavus Schrank (Fig. 99)

Honey suckle thrips

Thrips flavus Schrank, 1776. Buffa, 1909: 135.
Thrips flava Schrank, 1776: 31.
Thrips Melanopa Schrank, 1781: 298, 299.
Physothrips flavidulus Bagnall, 1916b: 399.
Thrips flavidus Bagnall, 1916b: 402.
Taeniothrips flavidulus (Bagnall); Ramakrishna, 1928: 256.
Taeniothrips flavus (Bagnall); Steinweden, 1933: 282.
Taeniothrips sulfuratus Priesner, 1935b: 358.
Taeniothrips luteus Oettingen, 1935: 183.
Taeniothrips saussureae Ishida, 1936: 70.
Taeniothrips rhopalantennalis Schumsher and Singh, 1946: 166, 168, 181.

Female body length 1.2-1.4 mm on slide. Pale yellow; antennal segment I whitish yellow, base of II light yellow and distal end yellow, base of III-V light yellow and distal ends pale brown, rest segments pale brown; forewings pale yellow, legs pale yellow.

Head wider than long, cheeks slightly arched, longer than eyes. Interocellar setae situated behind anterior ocellus, inside ocellar triangle. Six pairs of postocular setae. Transverse striae behind eyes. Antennae 7 or 8-segmented, III and IV with forked sense cone.

Pronotum with faint transverse striae, 2 pairs of long setae on posteroangulars, 3 pairs of posterior marginal setae, median pair longest, about 40 discal setae. Metanotum with dense striae, median pair of setae situated behind anterior suture, no canmaniform sensilla. Forewing with about 28 costal setae, upper vein with 7 basal setae, 3 distal setae; lower vein with 14-18 setae.

Posterior comb on tergite VIII complete; sternites without discal setae.

Male color and shape similar to female. Sternites III-VII with transverse glandular area.

Distribution: Cosmopolitan

Habitat: flowers of various plants.

Remarks: This species is morphologically similar to *T. palmi*. Both species are found on cucurbits, legumes, tea and many other agricultural crops, but their food requirements are different. Adults and larvae of *flavus* stay on blossoms, feed on pollen, honey and tissue of petals, while *palmi* stay mainly on leaves and buds.

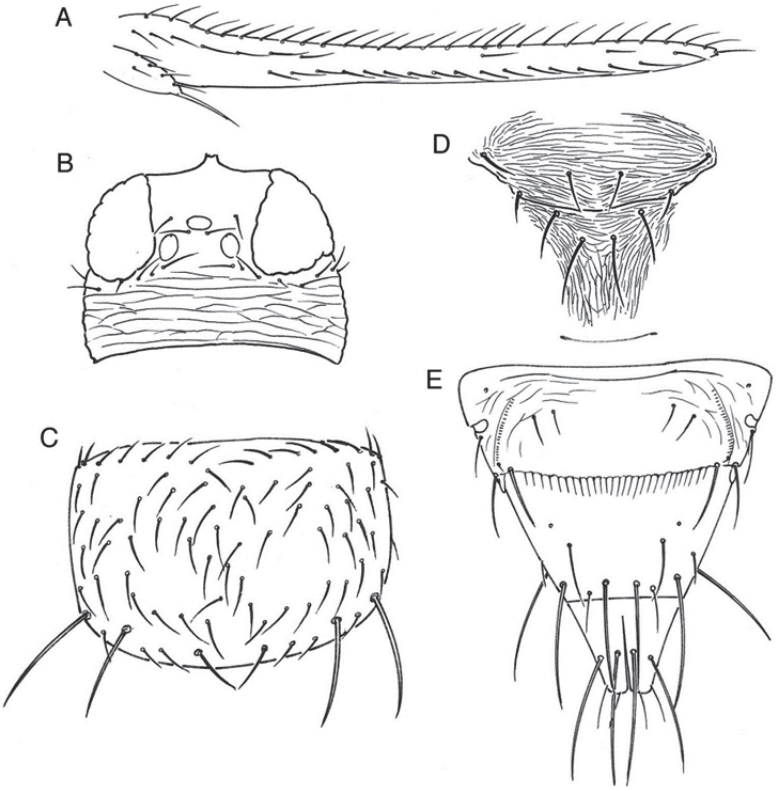

Fig. 99. *Thrips flavus* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips florum Schmutz (Fig. 100)

Thrips florum Schmutz, 1913: 1001, 1004.
Thrips parva Schmutz, 1913: 1001, 1004.
Thrips magnipes Schmutz, 1913: 1001, 1006.
Thrips rhodamniae Schmutz, 1913: 1001, 1008.
Thrips pallida Schmutz, 1913: 1001, 1005.
Thrips paradenyae Schmutz, 1913: 1002, 1015.
Thrips darci Girault, 1930: 8.
Thrips exilicornis Hood, 1932: 117, 118, 121, 129.

Female body length 1.4-1.6 mm on slide. Body color brown, antecostal ridges on tergites II-VIII dark brown; antennal segments I and II brown, III pale yellow, IV-VII brown; forewings brown with base paler, legs yellow, mid and hind femora brown.

Head wider than long, cheeks about same length as eyes. Interocellar setae situated between anterior and posterior ocelli, out of ocellar triangle. Six pairs of postocular setae, pair ii small, shorter than pair iii. Transverse striae behind eyes. Antennae 7-segmented, rarely with one antenna 8-segmented, III and IV with forked sense cone.

Pronotum smooth, several faint transverse striae near posterior margin, 2 pairs of long setae on posteroangulars, 3 pairs of posterior marginal setae, median pair longest, about 40 discal setae. Metanotum with dense striae, median pair of setae situated close to anterior suture, one pair of canmaniform sensilla. Forewing with about 25-35 costal setae, upper vein with 7-8 basal setae, 3 distal setae; lower vein with 13-17 setae.

Posterior comb on tergite VIII minute and complete; tergite X split partially. Sternites III-VII with 8-14 discal setae.

Male tergite IX with 4 thorn-like setae, evenly spaced, median pair longer and stouter. Sternites III-VII with transverse glandular area.

Distribution: Cosmopolitan

Habitat: *Citrus limon*, *Gardenia jasminoides*.

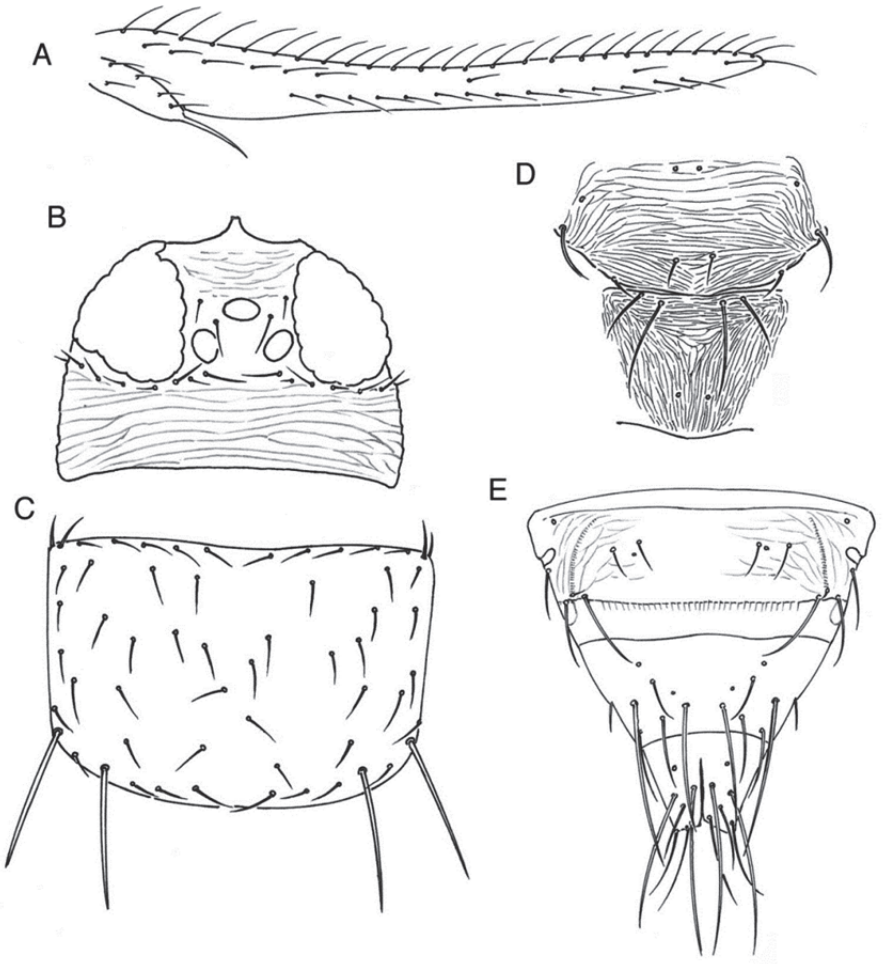

Fig. 100. *Thrips florum* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips formosanus Priesner (Fig. 101)

Thrips formosanus Priesner, 1934: 283, 290.

Female body length 1.4-1.6 mm on slide. Body color brown, antecostal ridges on tergites II-VIII dark brown, some specimens with red pigment; antennal segments I, II and IV-VII brown, III pale yellow or pale brown; forewings pale brown with base paler; legs yellow, median of fore femora brownish, margin of mid femora and most of hind femora pale brown.

Head wider than long, cheeks about same length as eyes. Interocellar setae situated between anterior and posterior ocelli, out of ocellar triangle. Six pairs of postocular setae. Transverse striae behind eyes. Antennae 7-segmented, III and IV with forked sense cone.

Pronotum with dense striae, anterior margin with 6 short setae, 2 pairs of long setae on posteroangulars, 3 pairs of posterior marginal setae, median pair longest, about 30 discal setae. Metanotum with dense striae, median pair of setae situated behind anterior suture, one pair of canmaniform sensilla. Forewing with about 25-28 costal setae, upper vein with 7 basal setae, 3 distal setae; lower vein with 14 setae.

Posterior comb on tergite VIII complete; tergite X split partially. Sternites withour discal setae. Epipleurites II-VII with posterior teeth.

Male color and shape similar to female but smaller, sternites III-VII with transverse glandular area.

Distribution: Taiwan.

Habitat: *Setaria palmifolia,* Cruciferae, Polypodiaceae.

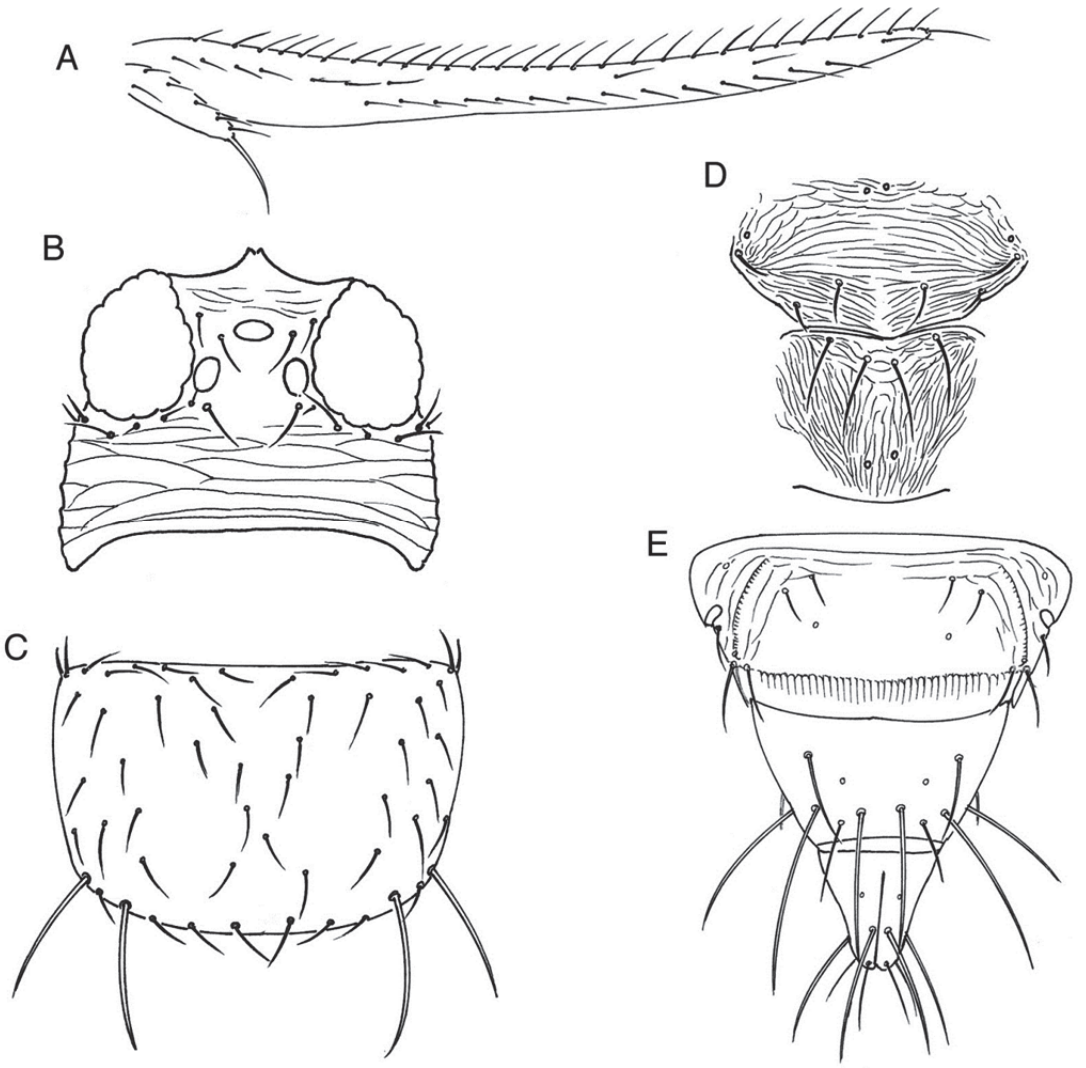

Fig. 101. *Thrips formosanus* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips hawaiiensis (Morgan) (Fig. 102)

Hawaiian flower thrips

Euthrips hawaiiensis Morgan, 1913: 3.
Thrips longalata Schmutz, 1913: 1002, 1009.
Thrips nigriflava Schmutz, 1913: 1002, 1012.
Thrips sulphurea Schmutz, 1913: 1001, 1002.
Thrips albipes Bagnall, 1914a: 25.
Physothrips hawaiiensis (Morgan); Karny, 1914: 367.
Physothrips pallipes Bagnall, 1916b: 400.
Physothrips albipes Bagnall, 1916b: 401.
Bregmatothrips thiefloris Karny, 1921b: 66.
Thrips versicolor Bagnall, 1926a: 108.
Thrips io Girault, 1927a: 351.
Thrips partirufus Girault, 1927b: 1.
Taeniothrips hawaiiensis (Morgan); Moulton, 1928a: 110, 132.
Taeniothrips (Physothrips) albipes (Bagnall); Moulton, 1928b: 325.
Taeniothrips eriobotryae Moulton, 1928b: 297, 325.
Taeniothrips pallipes (Bagnall); Moulton, 1928b: 302, 326.
Taeniothrips hawaiiensis (Morgan); Steinweden, 1933: 286.
Thrips (Thrips) hawaiiensis (Morgan); Priesner, 1934: 266, 287.
Taeniothrips rhodomyrti Priesner, 1938b: 492, 520, 524, 526.
Thrips leucaenae Moulton, 1942: 9.

Female body length 1.4-1.6 mm on slide. Bicolored or brown. **Bicolored form**: head and thorax yellow, orange yellow or brown, with red pigment, abdomen brown, antecostal ridges on tergites II-VIII dark brown; antennal segments I yellow or pale yellow, II brown, III pale yellow, rest segments brown; forewings grayish brown with base paler, legs yellow. **Brown form**:body

brown, antennae brown, II darkest; forewings pale yellow; fore femora grayish brown, tibia and tarsi light yellow, mid and hind legs brown except tarsi light yellow.

Head wider than long, cheeks about same length as eyes. Interocellar setae situated between anterior and posterior ocelli, out of ocellar triangle. Six pairs of postocular setae, pair ii and iii about same length. Transverse striae behind eyes. Antennae 7-segmented, occasionally 8-segmented, III and IV with forked sense cone.

Pronotum smooth, several faint transverse striae near posterior margin, 2 pairs of long setae on posteroangulars, 3 pairs of posterior marginal setae, median pair longest, about 40 discal setae. Metanotum with dense striae, median pair of setae situated close to anterior suture, one pair of canmaniform sensilla. Forewing with about 25-35 costal setae, upper vein with 7-8 basal setae, 3 distal setae; lower vein with 13-17 setae.

Posterior comb on tergite VIII complete; tergite X split partially. Sternites II-VII with 12-19 discal setae. Posterior margin of epipleurites II-VII with minute teeth.

Male tergite IX with 4 thorn-like setae, about equal length, distance between median pair setae longer than distance between median and submedian setae.

Distribution: Cosmopolitan

Habitat: *Morus* sp., *Psidium guajava*, *Musa sapientum*, *Camellia* sp., *Lily*, *Pseudocalymma alliaceum*, *Murraya paniculata*, *Phaseolus vulgaris*, *Tabernaemontana divaricate*, *Duranta repens*, *Wedelia chinensis*, *Zephyranthes candida*, *Mangifera indica*, *Bauhinia variegate*, *Orchidaccceae*, *Erythrina X bidwillii*, *Beloperone guttata*, *Albizzia julibrissin*, *Prunus salicina*, *Prunus mume*, *Areca catechu*, *Capsicum annum*, *Allium fistulosum*, *Citrus grandis*, *Garcinia multiflora*, *Euphoria longana*, *Pyrus* sp., *Chrysanthemum coronarium*, *Osmanthus fragrans*.

Remarks: in Taiwan, most individuals have 7-segmented antennae, rarely 8-segmented. This species is commonly occurred on vegetables, fruits and ornamental plants.

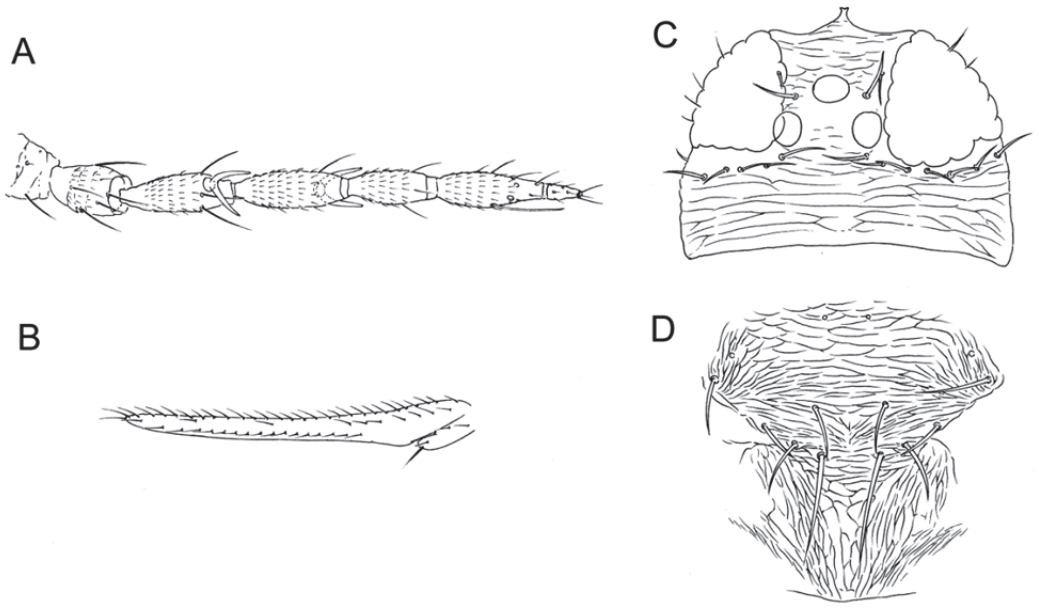

Fig. 102. *Thrips hawaiiensis* (♀) A. antenna; B. forewing; C. head; D. meso- and metanotum.

Thrips inferus Chen

Thrips inferus Chen, 1979: 423.

Female body length 1.12 mm on slide. Light yellow, vertex and thorax darker, antecostal ridge on tergites II-VII dark brown, followed by a brown trianglular shading; tergites VIII-X light yellow. distal 1/2 of antennal segments IV, distal 1/3 of V and segments VI and VII brown, rest segments light yellow; forewings grayish, basal area paler.

Head wider than long, with transverse striae behind eyes, cheeks slightly arched. Interocellar setae situated out of ocellar triangle. Mouth cone long, reach middle of prothorax. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum with transverse striae, 2 pairs of long setae on posteroangulars, 3 pairs of posterior marginal setae. Forewing with about 22 costal setae, upper vein with 7 basal setae, 3 distal setae; lower vein with 12 setae.

Laterals of abdominal tergites I-VII with transverse striae; posterior comb on tergite VIII complete. Sterrnites II with 3 discal setae; sternites III-VII with 8-12 discal setae.

Male color and shape similar to female but smaller, abdominal tergites without brown shadings; sternites III-VII with transverse glandular area.

Distribution: Taiwan.

Habitat: *Glycine max*.

Remark: This species was described according to Chen's original description in 1979.

Thrips kotoshoi (Moulton)

Taeniothrips kotoshoi Moulton, 1928b: 300, 326.
Thrips kotoshoi (Moulton); Bhatti, 1978b: 191.

Female body length 1.5 mm on slide. Dark brown, thorax with red pigment; antennal brown except segment III paler; all femora dark brown with base paler, tarsi yellow; forewings uniformly grayish brown.

Head wider than long, cheeks almost straight, with transverse striae behind eyes. Interocellar setae well developed, situated in front of posterior ocelli, out of ocellar triange. Antennae 8-segmented, segments III, IV and VI in equal length, or VI longest, VII and VIII in equal length.

Pronotum with 2 pairs of long setae on posteroangulars, in about equal length; metanotum covered with dense striae, median pair of setae situated on anterior suture, with one pair of campaniform sensilla. Forewing with about 25 costal setae, upper vein with 8 basal setae, 3 distal setae; lower vein with 13 setae.

Laterals of abdominal tergites VIII with minute comb, tergite X split almost complete. Sterrnites III-VII with 8-12 discal setae.

Distribution: Taiwan (Koto island), Fuji.

Habitat: *Canavalia obtusifolia*

Remark: This species was described according to the original description of Moulton (1928) and paper by Palmer (1992).

Thrips malloti Priesner (Fig. 103)

Thrips (*Isoneurothrips*) *malloti* Priesner, 1934: 269.
Thrips (Isoneurothrips) *addendus* Priesner, 1934: 270, 288.
Isoneurothrips rosaceae Moulton, 1936a: 272.

Female body length 0.9-1.2 mm on slide. Head and thorax yellowish brown, with red pigment, abdomen brown, antecostal ridge on tergites II-VIII dark brown; antennae brown except segment III, bases of IV and V light yellow; forewings grayish brown, with base paler; margin of fore and mid femora, and whole hind femora brown, tibiae and tarsi light yellow.

Head wider than long, cheeks shorter than eyes. Interocellar setae situated a little behind anterior ocelli, 6 pairs of postocular setae. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum with dense transverse striae, 2 long setae on each posteroangular, one short seta in between, 3 pairs of posteromarginal setae, median pair longest, about 40 discal setae. Metanotum with median reticulations and inner wrinkes, median pair of setae situated behind anterior suture, with one pair of campaniform sensilla. Forewing with about 26 costal setae, upper vein with 18-20 setae, lower vein with 14-16 setae, all arranged evenly.

Abdominal tergites VIII without comb, tergite X split partially. Sterrnites without discal setae.

Male color and shape similar to female but smaller, abdominal sternites III-VII with transverse glandular area.

Distribution: Taiwan, Japan, Phillipines.

Habitat: *Allamanda cathartica*, *Paederia scandens*, *Luffa cylindrical*, *Ipomoea aquatic*, *Psidium guajava*, *Ipomoea nil*, *Camellia* sp., *Rosa rugosa*, *Vitex negundo*, *Plumbago zeylanica*.

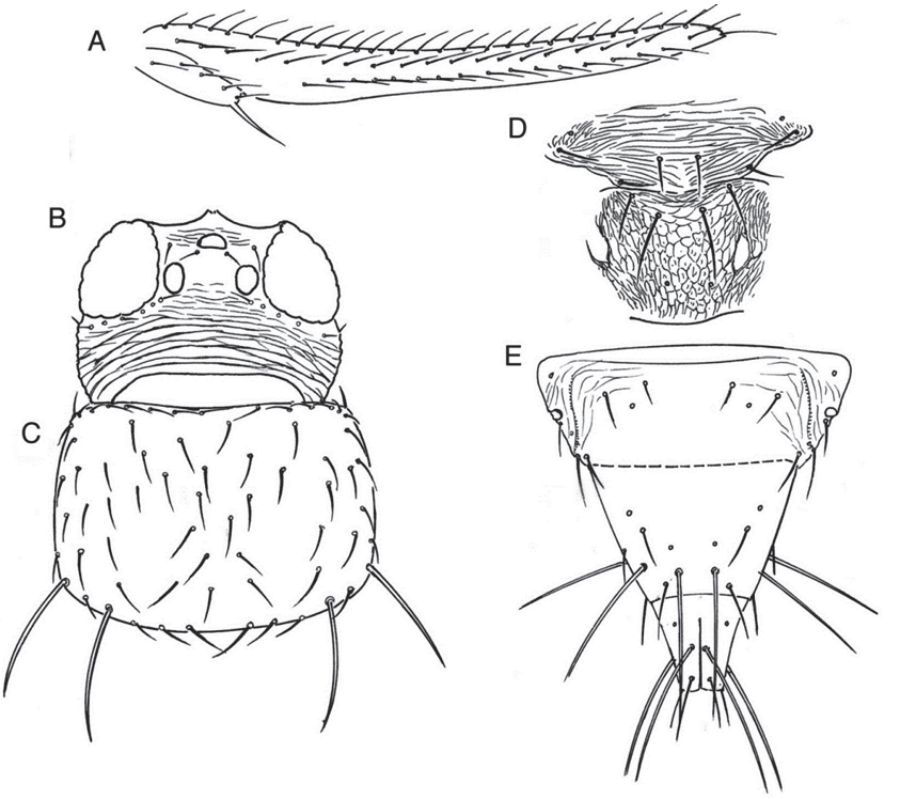

Fig. 103. *Thrips malloti* (♀) A. forewing; B. head and pronotum; C. meso- and metanotum; D. tergites VIII-X.

Thrips nigropilosus Uzel (Fig. 104)

Chrysanthemum thrips

Thrips nigropilosa Uzel,1895: 37, 55.
Thrips laciucae Beach,1896: 219, 224.
Thrips aureus Hood, 1915a: 27.
Thrips heraclei Moulton, 1926b: 25.

Female body length 1-1.3 mm on slide. Head and thorax yellow to yellowish brown, thorax and abdomen with brown shadings; forewings basal and subbasal areas with grayish brown shadings; antennal segment I light yellow, III-V yellowish brown at base, rest segments brown.

Head wider than long, cheeks almost straight, longer than eyes. One pair of anteocellar setae; interocellar setae situated on both sides of anterior ocellus, out of ocellar trianglular area,and at about middle way between anterior ocellus and compound eye. Six pairs of postocular setae, 3rd from median shortest. Antennae 7-segmented, III and IV with forked sense cone.

Pronotum with transverse striae, 12-20 discal setae, 2 pairs of long setae on posteroangulars, 3 pairs of inner setae. Metanotum with sparse median reticulations, straight lines on both sides, median pair of setae situated behind anterior suture, without campaniform sensilla. Forewing upper vein with 7 basal setae, 3-4 distal setae, lower vein with 10-12 setae.

Abdominal tergite VIII with complete comb, 2/3 of tergite X split; sternites without discal setae.

Male color and shape similar to female, but smaller. Thorax with brown shadings; sternites III-VII with large, transverse glandular area.

Distribution: Taiwan, Japan, Korea, Australia, New Zealand, Europe, US.

Habitat: gramineous plants, chrysanthymum, lettuce.

Remarks: There are brachypterous individuals recorded. Brachyterous females are in darker color than macropterous ones, and reticulations on metanotum are more obvious. All specimens collected in Taiwan are macropterous.

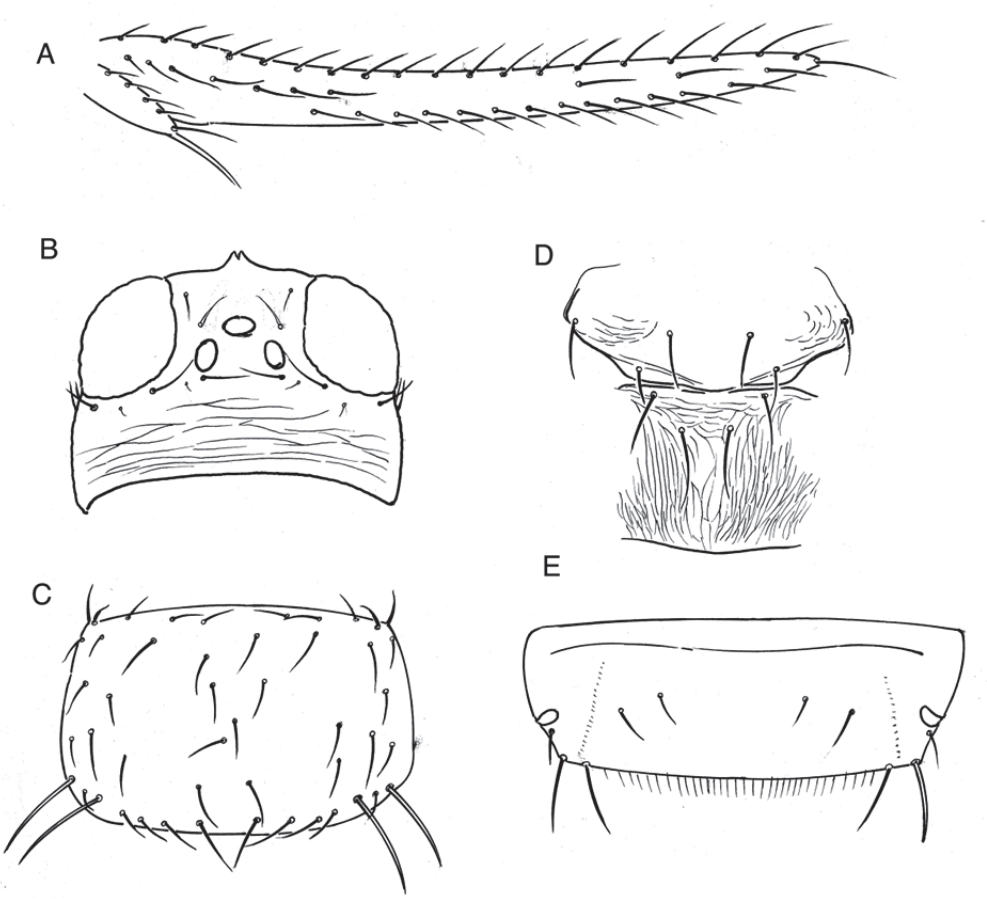

Fig. 104. *Thrips nigropilosus* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergite VIII.

Thrips orientalis Priesner (Fig. 105)

Isoneurothrips orientalis Bagnall, 1915: 593-594.
Thrips setipennis Steinweden & Moulton, 1930: 25-26.
Thrips (Isothrips) orientalis (Bagnall); Priesner, 1940: 54.

Female body length 1.6 mm on slide. brown, antecostal ridge on tergites II-VIII dark brown; antennal segments I and II dark brown, same color as head, III and bases of IV and V light yellow, rest segments brown; forewings grayish brown; legs light yellow.

Head wider than long, with transverse striae, cheeks almost straight and longer than eyes. Interocellar setae situated a little bit behind anterior ocellus. Six pairs of postocular setae. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum with transverse striae, about 30 discal setae; 2 pairs of long setae on posteroangulars, 3 pairs of inner setae, median pair longest. Metanotum with obvious median reticulations and small inside wrinkles, median pair of setae situated behind anterior suture, without campaniform sensilla. Forewing with about 30 costal setae, upper vein with 7 basal setae, 8-10 distal setae, lower vein with 13-16 setae.

Posteromargin of abdominal tergite VIII with lateral comb, lacking in middle; tergite X split partially. Sternites III-VI with 2-6 discal setae; sternite VII without discal setae. Pleurites III-VII with posterior teeth.

Male smaller, abdominal sternites III-VII with transverse glandular area.

Distribution: Taiwan, China, Japan, Philippines, Malaysia, Thailand, India, Pakistan, Hawaii.

Habitat: *Jasminum sambac*.

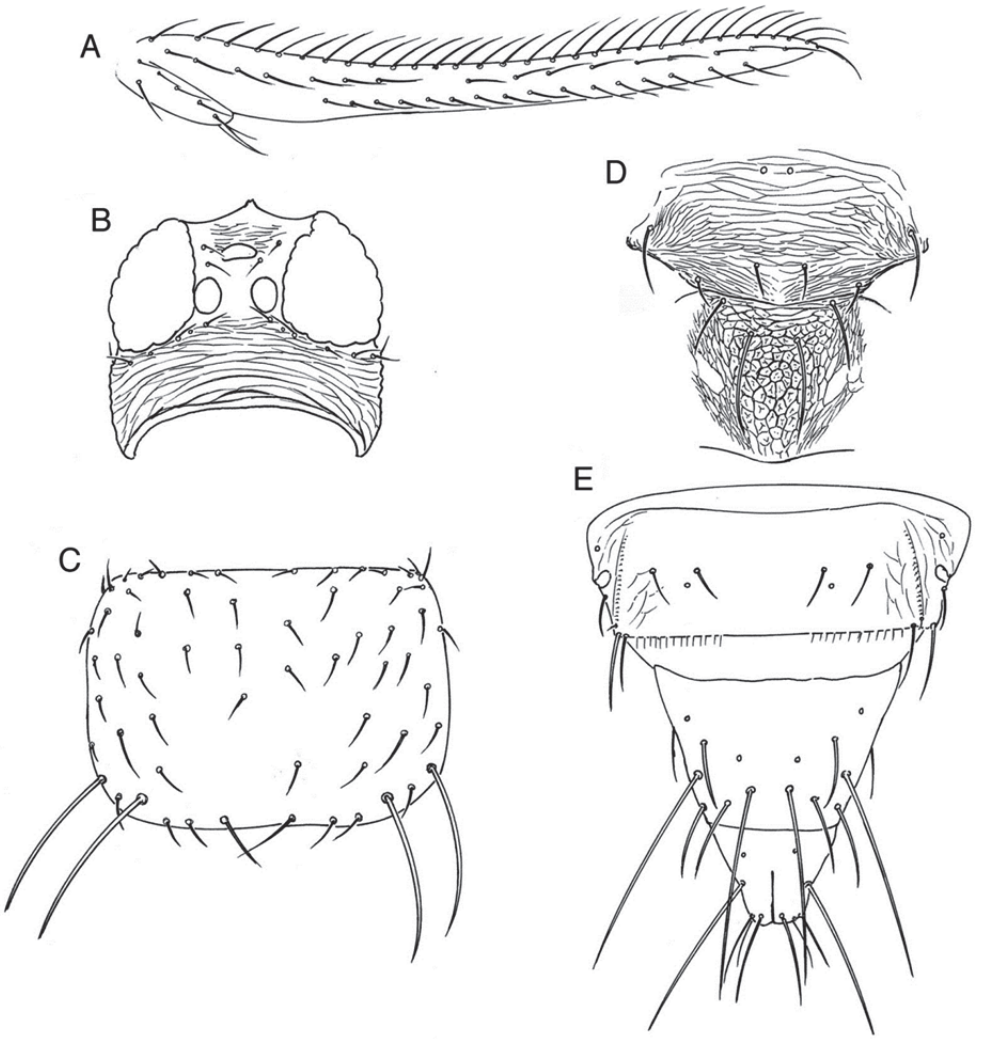

Fig. 105. *Thrips orientalis* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips palmi Karny (Fig. 106)

Melon thrips, Palm thrips

Thrips palmi Karny, 1925: 10.
Thrips clarus Moulton, 1928c: 294, 295.
Thrips nilgiriensis Ramakrishna, 1928: 245, 262.
Thrips leucadophilus Priesner, 1936a: 91-92.
Thrips gossypicola (Priesner); Ramakrishna & Margabandhu,1939b: 41.
Thrips gracilis Ananthakrishnan & Jagadish, 1968: 361.

Female body length 1.2-1.4 mm on slide. Light yellow, compound eyes red or purple black, ocelli orange red; antennal segment I light yellow, II light yellow or golden yellow, basal 2/3 of III, basal 1/3 of IV and base 1/5 of V grayish brown, rest segments brown; forewings light yellow; legs light yellow.

Head wider than long, cheeks a little longer than eyes. Interocellar setae situated on both sides of anterior ocellus, out of ocellar triangle; 6 pairs of postocular setae. antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum with transverse striae, about 30 discal setae; 2 pairs of long setae on posteroangulars, 3 pairs of inner setae, median pair longest. Mesofurca with spinula, metafurca without spiunula; metanotum with dense striae, median pair of setae situated behind anterior suture, without campaniform sensilla. Forewing with about 18 costal setae, upper vein with 7 basal setae, 3 distal setae, lower vein with 11 setae.

Abdominal tergite VIII with complete comb; sternites without discal setae; pleurites II-VII with posterior teeth.

Male smaller, abdominal sternites III-VII with transverse glandular area.

Distribution: Taiwan, Hong Kong, China, Philippines, Malaysia,, Thailand, Indonesia,,India,

Pakistan, Sri lanka, Singapore, Japan, US (Florida, Hawaii), Brazil, Australia, Guam, Mauritius, Nigeria, Sudan.

Habitat: *Chrysanthemum* sp., *Leguminosae*, *Rhododendron* sp., *Hibiscus rosa-sinensis*, *Tagetes patula*, *Psidium guajava*, *Alpinia speciosa*, *Quercus* sp., *Beloperone guttata*, *Celosia argentea*, *Osmanthus fragrans*, *Impatiens balsamina*.

Remarks: In Taiwan, *T. palmi* is a pest on many crops. Larvae and adults stay mainly on leaves, flowers and young fruits. Surface of eggplants, bell peppers, cucumbers and some other fruiting crops may seriously be damaged.

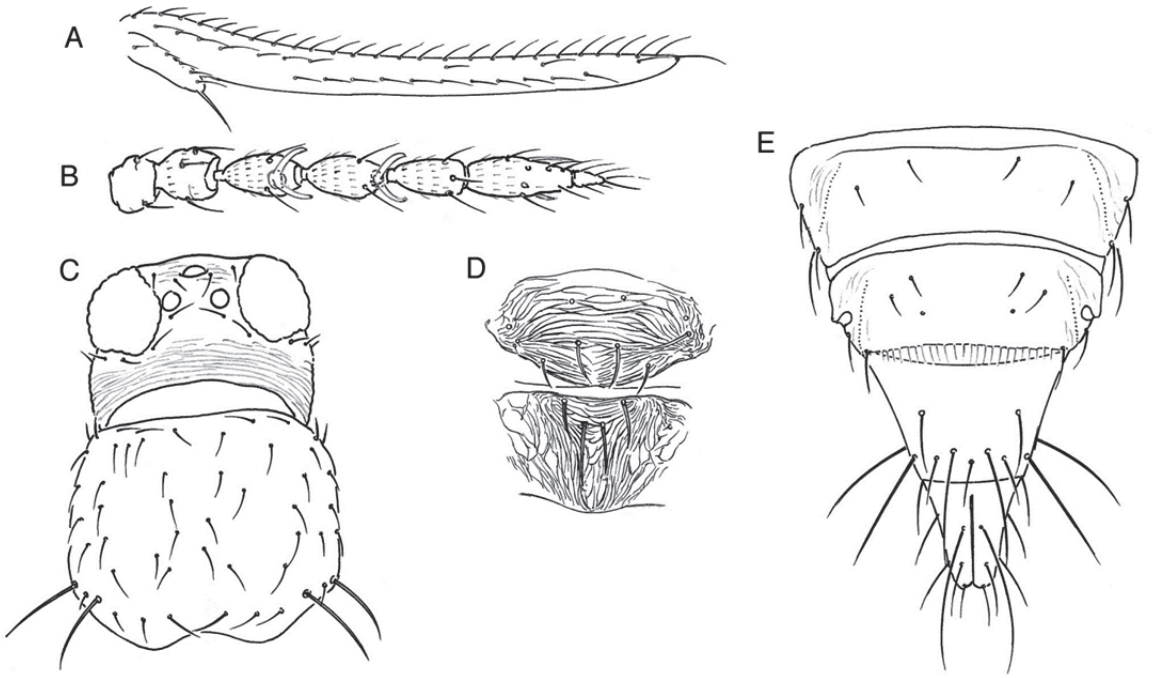

Fig. 106. *Thrips palmi* (♀) A. forewing; B. antenna; C. head and pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips simplex (Morison) (Fig. 107)

Gladiolus thrips

Physothrips simplex Morison, 1930: 12.
Taeniothrips gladioli Moulton and Steinweden, 1931: 20-21.
Taeniothrips simplex (Morison); Steele, 1935: 33-36.
Taeniothrips quinani Moulton, 1936d: 506.
Thrips simplex (Morison); Miyazaki & Kudo, 1987: 230-232.

Female body length 1.6 mm on slide. Dark brown; antennae dark brown except segment III paler; forewings grayish brown, transparent at base; legs brown, distal 3/4 of fore tibiae, distal 1/4 of both mid and hind tibiae, and all tarsi light yellow.

Head wider than long, covered with transverse striae. Interocellar setae situated between anterior and posterior ocelli, inside ocellar triangle, 6 pairs of postocular setae. Antennae 8-segmented, segments III and IV with forked snese cone, transparent ring between segments III-VII.

Pronotum with transverse striae, about 30 discal setae; 2 pairs of long setae on posteroangulars, 3 pairs of inner setae, median pair longest. Metanotum with median reticulated sculpture, dots and wrinkles inside reticulations. Forewing with about 28 costal setae, upper vein with 7 basal setae, 4-7 distal setae, lower vein with 14 setae.

Abdominal tergite VIII with complete comb; tergite X split partially. Sternites III-VI with 10-14 discal setae, sternite VII with 10-12 discal setae. Pleurites III-VII with posterior teeth.

Male color and shape similar to female but smaller. sternites III-VII with transverse glandular area.

Distribution: Gladiolus cultivated area all over the world.

Habitat: *Gladiolus hortulanus*, *Dahlia pinnata*.

Remarks: It is gladiolus pest in Taiwan. Adults and larvae damage leaves and flowers during field growing stage, damage bulbs during bulb storage period.

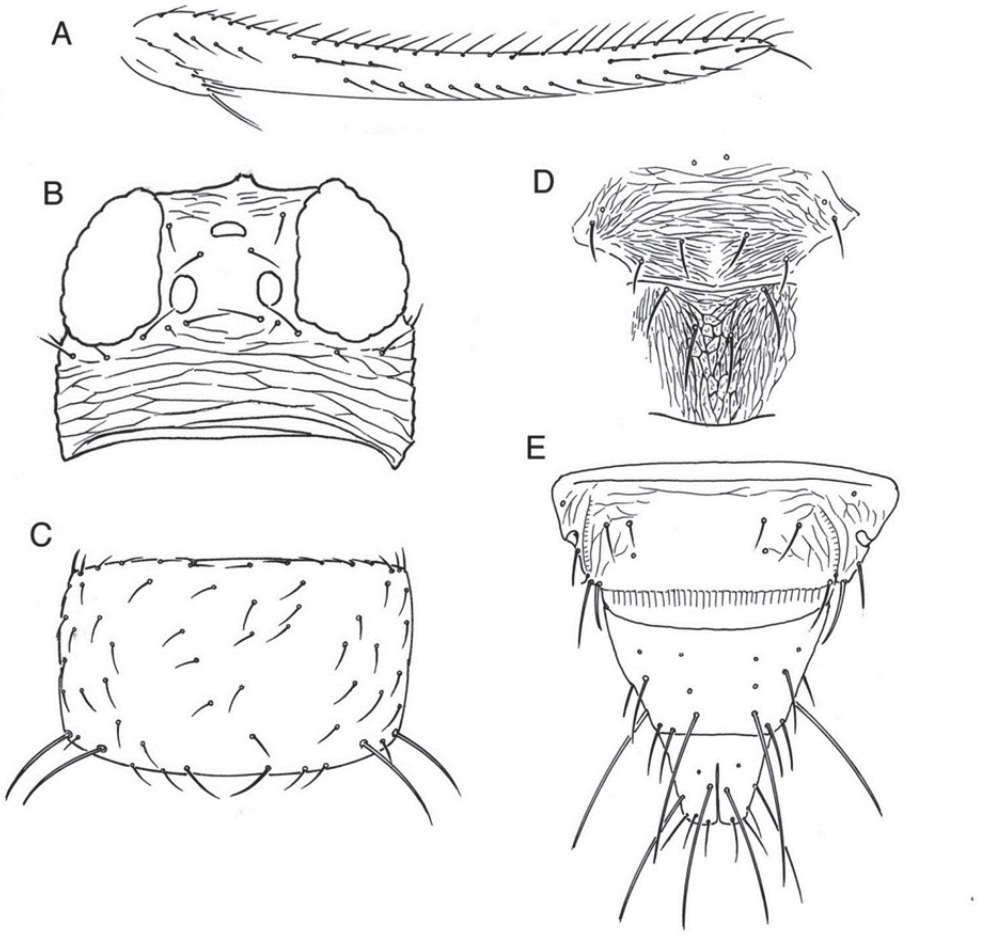

Fig. 107. *Thrips simplex* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips tabaci Lindeman (Fig. 108)

Onion thrips, Potato thrips

Thrips tabaci Lindeman, 1889: 61, 72.
Limothrips tritici (Fitch); Webster, 1894: 206.
Thrips communis Uzel, 1895: 37, 55, 176.
Thrips flava var. *obsoleta* Uzel, 1895: 187, 188.
Thrips bicolor Karny, 1907: 21, 48.
Thrips bremnerii Moulton, 1911: 14, 23.
Thrips adamsoni Bagnall, 1923b: 58.
Thrips debilis Bagnall, 1923b: 60.
Thrips frankeniae Bagnall, 1926c: 654.
Thrips dorsalis Bagnall, 1927: 576.
Thrips hololeucus Bagnall; Moulton, 1928b: 327.
Thrips dianthi Moulton, 1936c: 104.
Ramaswamiahiella kallarensis Ananthakrishnan, 1960: 564.

Female body length 1.1-1.25 mm on slide. Body color varied, grayish yellow or brown. **Yellow form** with antennal segment I grayish yellow, II-VII grayish brown, bases of III-V paler; forewings grayish yellow; legs grayish yellow. **Brown form** with antennae brown and segment II darkest; forewings grayish yellow; legs grayish brown.

Head wider than long, covered with transverse striae, cheeks longer than eyes, almost parallet. Interocellar setae situated behind anterior ocellus, out of ocellar triangle; 6 pairs of postocular setae. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum with transverse striae, about 30 discal setae; 2 pairs of long setae on posteroangulars, 3 pairs of inner setae, median pair longest. Metanotum with median reticulated sculpture, without campaniform sensilla. Forewing with about 26 costal setae, upper vein with 7 basal setae, 4-5 distal setae, lower vein with 13-15 setae.

Abdominal tergites II-VII with posterolateral teeth; tergite VIII with complete comb; tergite X split partially. Sternites III-VI without discal setae. Lateral of pleurites III-VII with posterior teeth.

Distribution: Cosmopolitan.

Habitat: *Brassica alboglabra*, *Dianthus caryophyllus*, *Allium* sp., *Gardenia jasminoides*, *Asparagus officinalis*, *Tropaeolum majus*, *Averrhoa carambola*.

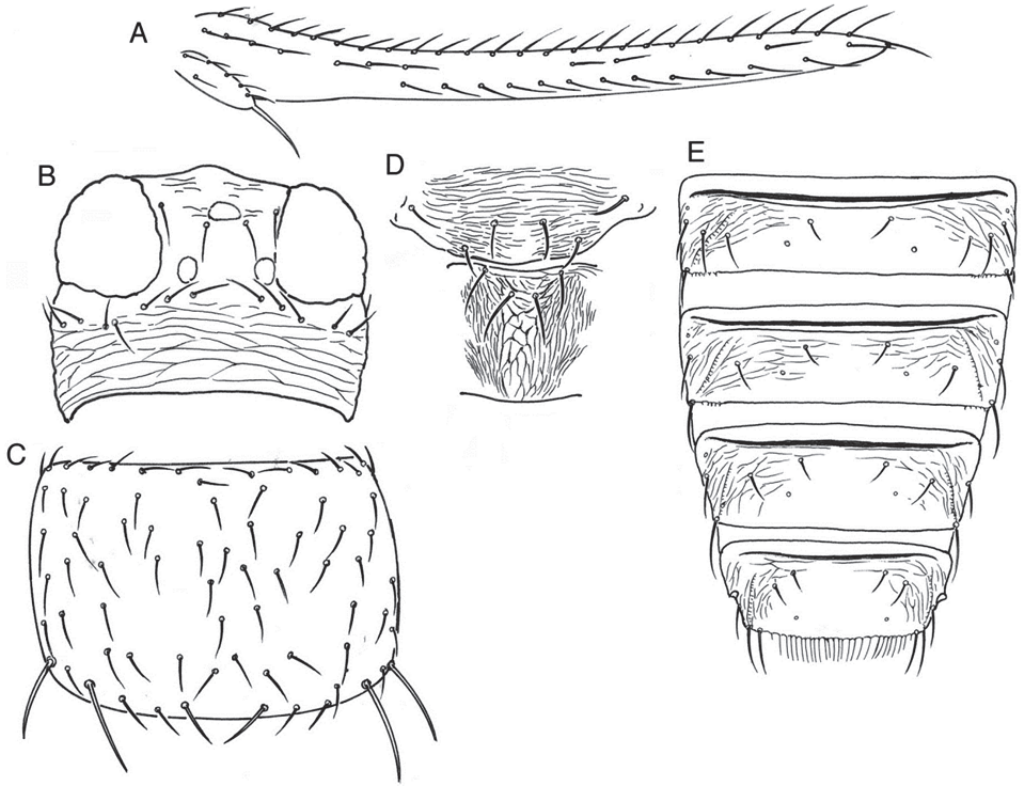

Fig. 108. *Thrips tabaci* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites V-VIII.

Thrips taiwanus Takahashi (Fig. 109)

Isoneurothrips pallipes Moulton, 1928c: 296.
Thrips (*Isoneurothrips*) *taiwanus* Takahashi, 1936: 440.
Thrips (*Isothrips*) *taiwanus* Takahashi; Sakimura, 1967: 431, 432.

Female body length 1 mm on slide. Grayish brown, abdomen darker; antennal segments I, II, VI and VII same color as head, III grayish yellow, basal 1/3 of IV and basal 1/3 of V grayish yellow, distal end of IV and V same color as VI; forewings grayish brown, basal 1/4 paler; legs yellow, middle of femora light brown.

Head wider than long, transverse striae behind eyes. Interocellar setae situated in front of posterior ocelli. Inner most pair of postocular setae arised right behind posterior ocelli. Mouth cone long, reach posterior margin of prothorax. antennae 7-segmented, about 2.5 times as long as head, segment VI longest.

Pronotum a little wider than head, 2 pairs of long setae on posteroangulars, 3 pairs of inner setae. mesothorax obvious wider than metathorax. Metanotum with median reticulations, median pair of setae situated behind anterior suture, without campaniform sensilla. Forewing with about 26 costal setae, upper vein with 7 basal setae, 4-5 distal setae, lower vein with 13-15 setae.

Abdominal tergite VIII without comb; tergite X split to base of main setae. sternites III-VI with 6-8 discal setae; sternite VII without discal setae.

Male smaller and slender, color paler; sternites III-VII with transverse glandular area.

Distribution: Taiwan.

Habitat: *Paederia scandens*.

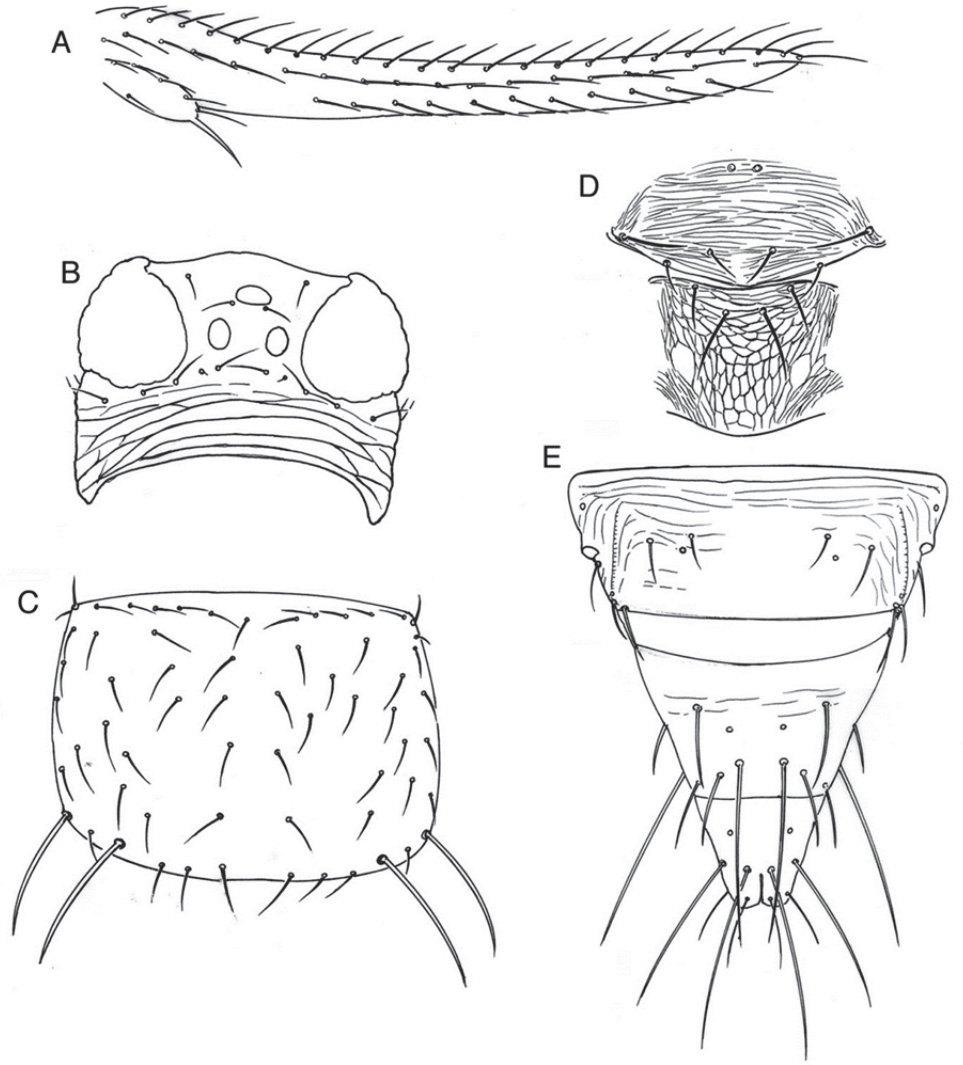

Fig. 109. *Thrips taiwanus* (♀) A. forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips vitticornis (Karny) (Fig. 110)

Physothrips vitticornis Karny, 1922: 103-106.
Taeniothrips canavaliae Moulton, 1928b: 295, 325.
Taeniothrips (Taeniothrips) vitticornis (Karny); Priesner, 1938b: 519, 523, 524, 525, 526.
Thrips vitticornis (Karny); Bhatti, 1969b: 380.

Female body length 1.2-1.25 mm on slide. Dark brown, ocellar area and thorax with red pigment; antennal segments I and II brown except base of II paler, III light yellow, basal 1/3 of IV light yellowm distal light brown, V-VIII brown; base of V with a twhite ring; forewings grayish brown, with base paler; fore femora paler than mid and hind femora; fore tibiae light yellow, outer margin darker; mid and hind tibiae grayish brown; tarsi light yellow.

Head wider than long, transverse striae behind eyes. Interocellar setae situated on both sides of anterior ocellus, just in front of posterior ocelli. Posterior ocelli connected with eyes. antennae 8-segmented, III and IV with forked sense cone. Antennae 7-segmented, segments III and IV with forked sense cone.

Pronotum with 2 pairs of long setae on posteroangulars, 3-4 pairs of inner setae, median pair longest. Metanotum with dense striae, median pair of setae situated on anterior suture, with one pair of campaniform sensilla. Forewing with about 28 costal setae, upper vein with 7-8 basal setae,followed bt 5-7 setae, lower vein with 15 setae.

Comb only on posterolateral margin of abdominal tergite VIII, teeth minute and irregular; tergite X split completely. Sternites II-VI with 12 discal setae; sternite VII with 10 discal setae.

Male about 1.1 mm on slide. Body color similar to female, with red pigment; antennal segment I dark brown, II brown, III and IV light yellow, basal 1/3 of V light yellow, rest segments brown; femora dark brown, tibiae yellowish brown, tarsi paler.

Distribution: Taiwan, Indo-China Peninsula, Pacific islands.

Habitat: *Melastoma malabathricum*, *Canavalia ensiformis*, *Canavalia obtusifolia*, *Desmodium umbellatum*, *Canavalia lineata*, *Tithonia diversifolia*, *Derris uliginosa*, *Barringtonia racemosa*, *Pongamia glabra*.

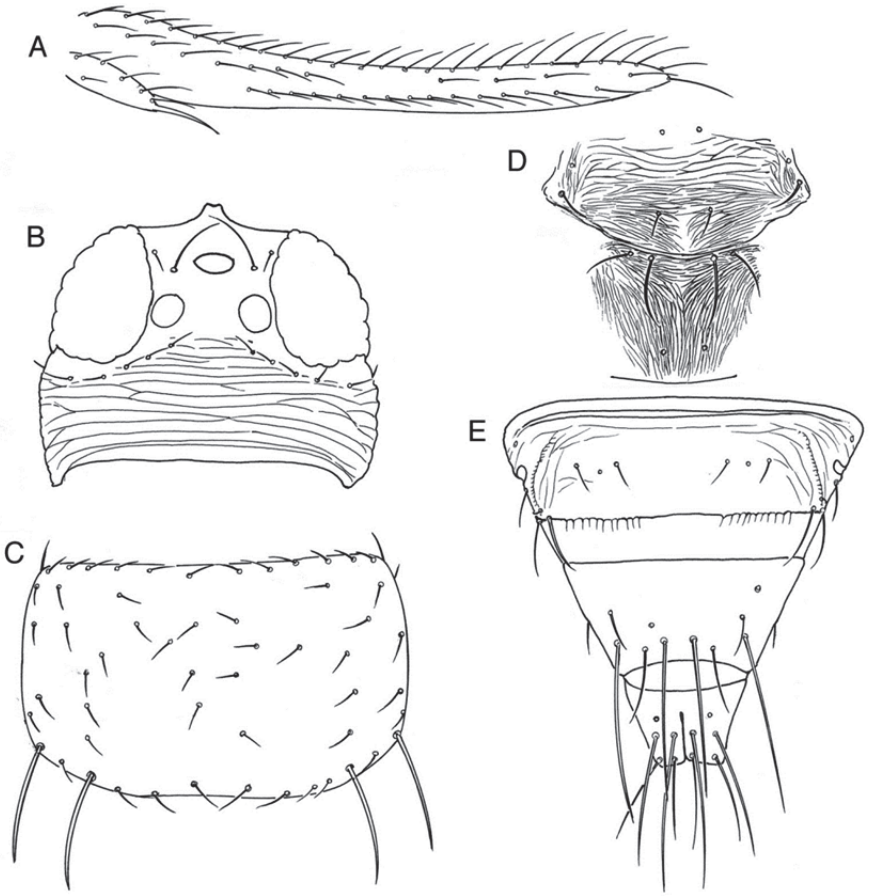

Fig. 110. *Thrips vitticornis* (♀) A . forewing; B. head; C. pronotum; D. meso- and metanotum; E. tergites VIII-X.

Thrips wedeliae Priesner

Isoneurothrips setipennis Moulton, 1928c: 297.
Thrips wedeliae Priesner, 1934: 257, 285, 287.
Thrips (*Isoneurorhrips*) *setipennis* (Moulton); Takahashi,1936: 440.
Thrips (*Isoneurothrips*) *sumatrensis* var. *wedeliae* Priesner; Sakimura, 1967: 434.
Thrips setipennis Priesner; Palmer, 1992: 60.

Female body length 1.16 mm on slide. Color uniformly dark brown; ocellar area yellowish brown; antennal segment I same color as head, II, III, basal 2/3 of IV, basal 1/2 of V and base of VI light yellow, rest segments brown; forewings grayish brown, basal 1/4 paler; legs yellow, margin of femora darker.

Head wider than long, cheeks convex, transverse striae behind eyes. Posterior ocelli situated close to eyes. Mouth cone only reach half length of prothorax. Antennal segments III-VI in about equal length.

Pronotum with 2 pairs of long setae on posteroangulars, 3 pairs of inner setae. mesothorax obvious wider than metathorax. Metanotum with median reticulations, median pair of setae situated on anterior suture, with one pair of campaniform sensilla. Forewing with about 23 costal setae; upper vein with an almost complete row of setae, 8 basal, 5 medially and 2 distal, vein setae separated further toward distal end; lower vein with 12 setae, arranged evenly.

Posteromarginal comb of abdominal tergite VIII complete but irregular; tergite X split to base of main setae. sternite II with 1-2 discal setae; sternites III-VII with 5-16 discal setae.

Male unknown.

Distribution: Taiwan.

Habitat: Chrysanthemum.

Remark: This species was described according to the original description of *Isoneurothrips setipennis* by Takahashi (1936) and paper by Palmer (1992).

Trichromothrips-genus group

Bhatti (2000) erected *Trichromothrips*-genus group with 27 member species from 12 genera including *Dorcadothrips*.

Genus *Octothrips* Moulton

Moulton, 1940: 243. Type species: *Octothrips suspensus* Moulton, 1940.

Head, pronotum, mesonotum and lateral area of tergites with dense striae. Antennae 8-segmented, segments III and IV with slender apical neck and long forked sense cone; distal end of VI with 2 simple sense cones. Meso- and metafurca with spinula. Forewing upper vein with 6-10 basal setae, 2 distal setae. Tergite VIII without posteromarginal comb. Major setae of sternites situated in front of posterior margin, no discal setae.

There are 5 species in the world.

Octothrips bhatti (Wilson) (Fig. 111)

Apollothrips bhatti Wilson, 1972: 52-54.
Octothrips lygodii Mound, 2002:219-220.

Female body length 1.6 mm on slide. Light brown, color of abdomen and antennae variable; antennal segments light brown, III and IV uniformly light brown or with apical portion yellow; forewings brown; all legs yellow; abdominal tergites II-VIII with dark brown antecostal ridges, tergites all brown to median 1/3 brown but yellow laterally; Head with dense striae, cheeks shorter than eyes. Interocellar setae situated between anterior and posterior ocelli.

Pronotum with dense striae and one pair of posteroangular setae, 4 pairs of inner posteromarginal setae. Mesonotum with dense striae, median pair of setae situated in front of submedian pairs. Metanotum with sculpture of longitudinal reticles, median setae posterior to anterior margin, campaniform sensilla absent. Forewing upper vein with 2 distal setae, lower vein setal row complete.

Abdominal tergites II-VIII with median and lateral striae, VIII without posteromarginal comb.

Male similar to female, abdominal sternites III-VII with 50-70 small pale circular glandular areas.

Distribution: Taiwan, China, Hong Kong, Singapore, Malaysia, Thailand, Indonesia, India and Japan.

Habitat: ferns.

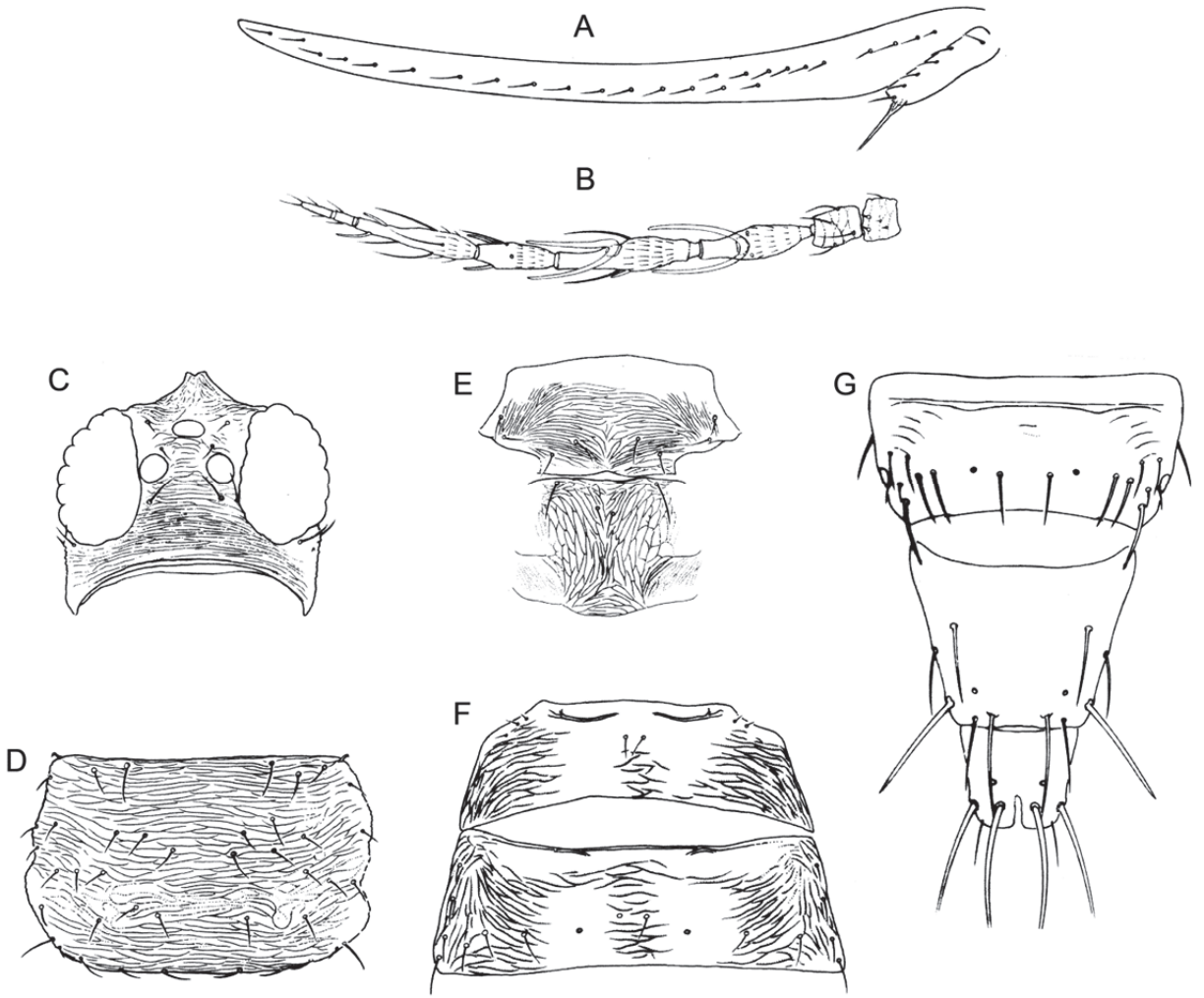

Fig. 111. *Octothrips bhatti* (♀) A . forewing; B. antenna; C. head; D. pronotum; E. meso- and metanotum; F. tergites I and II; G. tergites VIII-X.

Genus *Trichromothrips* Priesner

Priesner, 1930. 14(1): 6-15. Type species: *Trichromothrips Bellus* Priesner. 1930.

Bicolored, body and antennae slender, macropterous, brachypterous or apterous. Compound eyes big and protruding, cheeks constricted behind eyes, one pair of anteocellar setae, interocellar setae long. Antennae 8-segmented, segments III and IV with forked sense cone. Mouth cone broad and rounded. Pronotum with two pairs of posteroanglular setae; forewings of macropterous with unevenly arranged upper vein, lower vein arranged evenly, posterior fringe wavy. Mesofurca with spinula, metafurca without spinula. Abdominal tergite VIII without posteromarginal comb; median pair of setae of sternite VII situated in front of posterior margin, sternites with or without discal setae. Male abdominal sternites III-VIII with multiple circular glandular areas; tergites IX rarely with drapanae.

Key to species of *Trichromothrips* in Taiwan

1. Head almost square, abdominal segments in uniform color, light yellow or brown 2
-- Head longer than wide, abdominal segments bicolored 3

2. Pronotum bicolored, abdomen brown ..... *priesneri*
-- Pronotum and abdomen light yellow ..... *xanthius*

3. Antecostal ridge of abdominal tergites II-VI dark brown, obvious with light yellow abdomen; pronotum with one pair of median discal setae ..... *taiwanus*
-- Antecostal ridge of abdominal tergites II-VI same color as tergites; pronotum with 2 pairs of median discal setae ..... *formosus*

Trichromothrips formosus Masumoto & Okajima (Fig. 112)

Trichromothrips formosus Masumoto & Okajima, 2005: 11-17.

Female body length 1.2-1.7 mm on slide. Head brown; pronotum brown with median area pale; meso- and metanotum light yellow; abdominal tergites I-VI light yellow, antecostal ridges not conspicuous; tergites VII-X brown with red pigment; antennal segments I and II brown, III white, IV-VI white with distal 1/3-1/2 light brown, VII and VIII grayish brown; forewings brown; all legs light yellow.

Head longer than wide, produced in front of fore ocellus, cheeks constricted behind eyes; cheeks about same length as eyes. One pair of anteocellar setae; interocellar setae long, arising between 2 hind ocelli. Antennae 8-segmented, segments III and IV vasiform, with forked sense cone.

Pronotum smooth, 2 pairs of long posteroangular setae, 2 pairs of inner posteromarginal setae. Mesonotum almost smooth; median pair of setae situated in front of submedian pairs. Metanotum smooth, median setae behind anterior margin; campaniform sensilla absent. Forewing upper vein with 2 distal setae, lower vein setal row complete.

Abdominal tergite VIII without posteromarginal comb; tergite X complete.

Male color and shape similar to female but smaller. Abdominal tergite IX with one pair of drapanae; sternites III-VIII each with 5 glandular areas.

Distribution: Taiwan, Japan.

Habitat: *Schefflera octophylla*, *Imperata* sp., *legumineae*, *Aredca catechu*, M*urraya paniculata*.

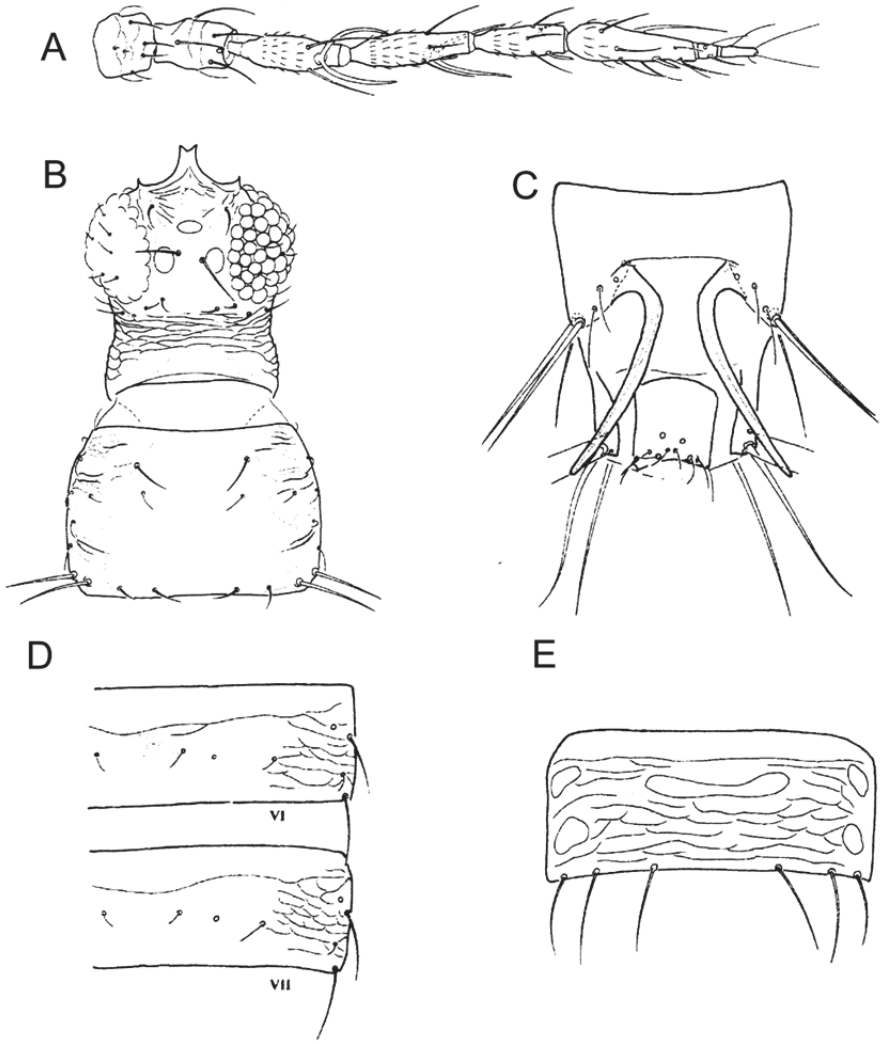

Fig. 112. *Trichromothrips formosus* (♀) A . antenna; B. head and pronotum; C tergites VI and VII; (♂) D. tergites IX and X; E. sternite VI. (Masumoto & Okalima, 2005)

Trichromothrips fragilis Masumoto & Okajima

Female body length about 1.2-1.4 mm on slide. Body uniformly yellowish white, except head brown; antennal segments I and II dark brown, III and IV yellowish white with distal half slightly shaded, V yellowish white with distal half brown, VI brown, VII and VIII pale brown; legs yellowish white; forewings dark brown.and legs light yellow except head grayish brown; antennal segments I and II brown, basal 2/3 of III and IV and basal 1/3 of V white, rest segments brown; forewings brown.

Head slightly longer than wide, produced in front of fore ocellus, cheeks constricted behind eyes; cheeks shorter than eyes. One pair of anteocellar setae; interocellar setae long, arising between anterior margin of 2 hind ocelli. Antennae 8-segmented, segments III and IV vasiform, with forked sense cone.

Pronotum with 2 pairs of long posteroangular setae, 2 pairs of inner posteromarginal setae. Mesonotum almost smooth; median pair of setae situated in front of submedian pairs. Metanotum smooth, median setae near anterior margin; campaniform sensilla absent. Forewing slender, upper vein with 6 (rarely 5 or 7) basal setae and 2 distal setae, lower vein with 13-18 setae in a complete row.

Abdominal slender, tergite VIII without posteromarginal comb; tergite X complete.

Male (macropterous) distended body length 1.0-1.2 mm. Color and shape similar to female. Aabdominal tergite IX with one pair of drepanae on posterior margin; sternites III-VII each with 5 glandular areas (paired circles laterally and one oblong medially).

Distribution: Taiwan, Japan.

Habitat: *Liquidambar formosana*, *Passiflora coerulea*.

Trichromothrips priesneri (Bhatti) (Fig. 113)

Apothrips priesneri Bhatti, 1967: 20-21.
Trichromothrips priesneri (Bhatti); Bhatti, 1978:167.

Female head and pronotum brown with median area pale, meso- and metanotum yellow, abdomen brown with red pigment. Antennal segments I and II rown, III and IV grayish brown except basal 1/3 to 1/2 of IV white, V white with distal end grayish,VI-VIII grayish brown; forewings brown; all legs yellow.

Head square, produced in front of fore ocellus, cheeks constricted behind eyes; cheeks shorter than eyes. One pair of anteocellar setae; interocellar setae long, arising between anterior margins of hind ocelli. Antennae 8-segmented, segments III and IV vasiform, with forked sense cone.

Pronotum smooth, 2 pairs of long posteroangular setae, 2 pairs of inner posteromarginal setae. Mesonotum almost smooth; median pair of setae situated in front of submedian pairs. Metanotum smooth, median setae near anterior margin; campaniform sensilla absent. Forewing upper vein with 2 distal setae, lower vein setal row complete.

Abdominal tergite VIII without posteromarginal comb; tergite X complete.

Male (macropterous) abdominal tergite IX with pair of long drapanae; sternites III-VIII with 6-8 glandular areas, 1-3 in median and 2-3 in lateral.

Distribution: Taiwan, India.

Habitat: Grasses.

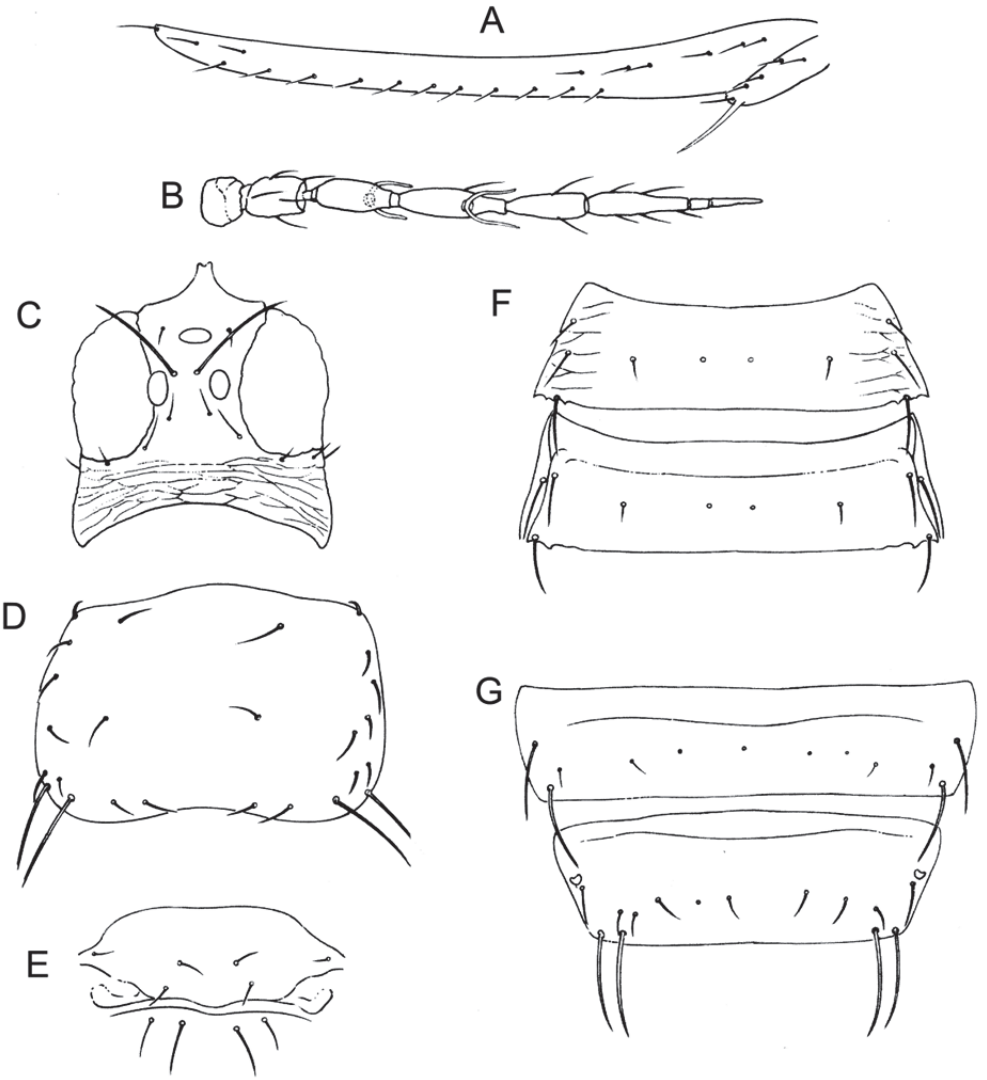

Fig. 113. *Trichromothrips priesneri* (♀) A . forewing; B.antenna; C. head; D. pronotum; E. setae on meso- and metanotum; F. tergites II and III; G. tergites VII and VIII.

Trichromothrips taiwanus Matsumoto & Okajima (Fig. 114)

Trichromothrips taiwanus Matsumoto & Okajima, 2005: 22-26.

Female body length about 1.6 mm on slide. Head brown; pronotum brown with median 1/3 light yellow; meso- and metanotum light yellow; abdominal tergites I-VI light yellow with antecostal redges brown, VII-X brown without red pigment; antennal segments I and II brown, III-V white with distal 1/3 brown, VI basal brown with basal 1/3 white, VII and VIII grayish brown; forewings brown; legs light yellow.

Head longer than wide, produced in front of fore ocellus, cheeks constricted behind eyes; cheeks about same length as eyes. One pair of anteocellar setae; interocellar setae long, arising between 2 hind ocelli. Antennae 8-segmented, segments III and IV vasiform, with forked sense cone.

Pronotum with 2 pairs of long posteroangular setae, one pair of inner posteromarginal setae. Mesonotum almost smooth; median pair of setae situated parallel to submedian pairs. Metanotum smooth, median setae near or on anterior margin; campaniform sensilla absent. Forewing upper vein with 5 basal setae and 2 distal setae, lower vein setal row complete.

Abdominal tergite VIII without posteromarginal comb; tergite X complete.

Male (macropterous) color and shape similar to female but paler and smaller. abdominal tergite IX without drapanae, one pair of sense pores near posterior margin, followed by a row of about 7 setae; sternites III-VIII with 5 glandular areas.

Distribution: Taiwan.

Habitat: *Persea zuihoensis*, *Ageratum houstonianum*.

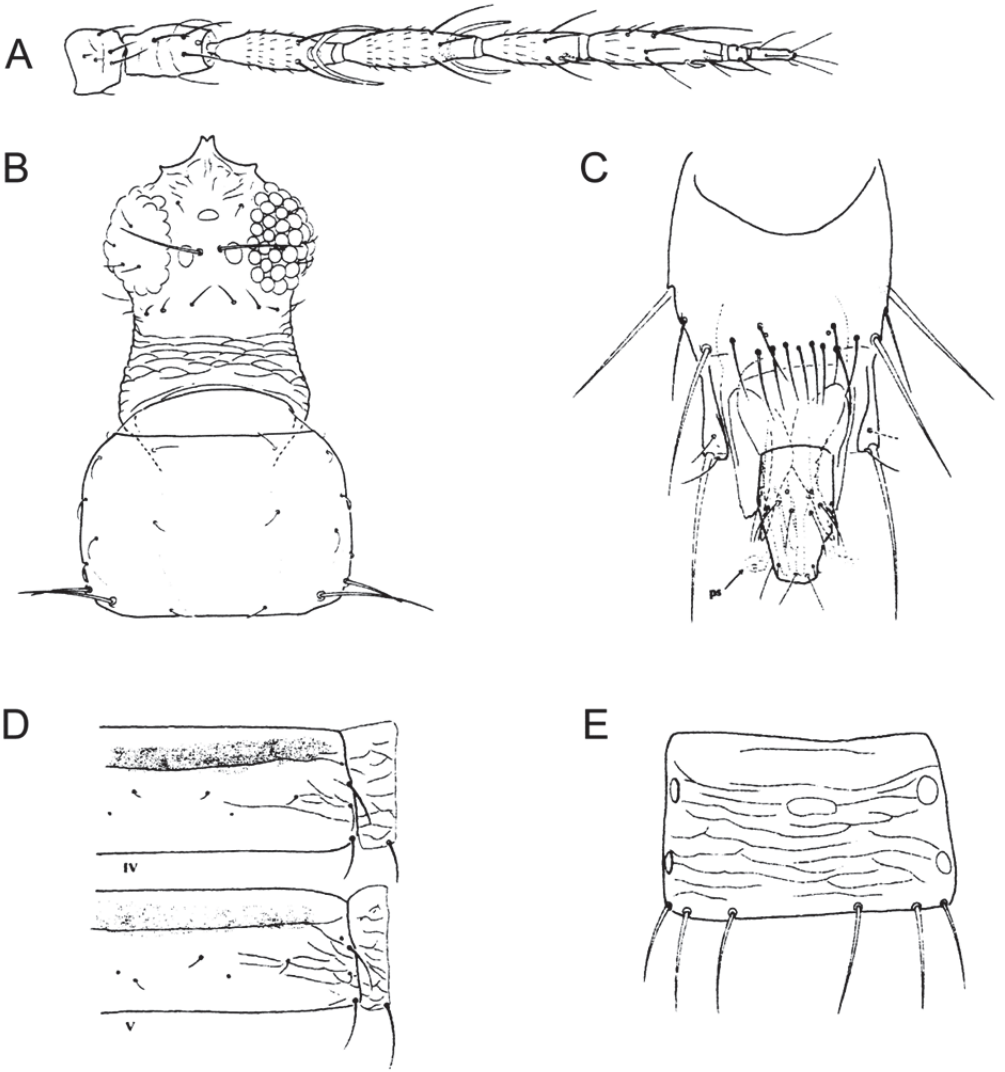

Fig. 114. *Trichromothrips taiwanus* (♀) A . antenna; B. head and pronotum; C. tergites IV and V; (♂) D. tergites IX and X of male; E. sternite VI. (Masumoto & Okalima, 2005)

Trichromothrips xanthius (Williams) (Fig. 115)

Physothrips xanthius Williams, 1917: 59.
Taeniothrips (Physothrips) xanthius (Williams); Watson, 1924a: 41, 42.
Taeniothrips xanthius (Williams); Moulton, 1933: 130.
Dorcadothrips xanthius (Williams); Bhatti, 1978b: 194.
Trichromothrips xanthius (Williams); Bhatti, 1999: 4.

Female body length about 1.2-1.3 mm on slide. Body and legs light yellow except head grayish brown; antennal segments I and II brown, basal 2/3 of III and IV and basal 1/3 of V white, rest segments brown; forewings brown.

Head square, produced in front of fore ocellus, cheeks constricted behind eyes; cheeks shorter than eyes. One pair of anteocellar setae; interocellar setae long, arising between anterior margin of 2 hind ocelli. Antennae 8-segmented, segments III and IV vasiform, with forked sense cone.

Pronotum with 2 pairs of long posteroangular setae, 2 pairs of inner posteromarginal setae. Mesonotum almost smooth; median pair of setae situated in front of submedian pairs. Metanotum smooth, median setae near anterior margin; campaniform sensilla absent. Forewing slender, upper vein with 6 basal setae and 2 distal setae, lower vein setal row complete.

Abdominal slender, tergite VIII without posteromarginal comb; tergite X complete.

Distribution: Taiwan, China, Japan, Korea, Hawaii, US, West Indies..

Habitat: *Bischofia javanica*, *Alfamanda cathartica*, *Calocedrus formosana*.

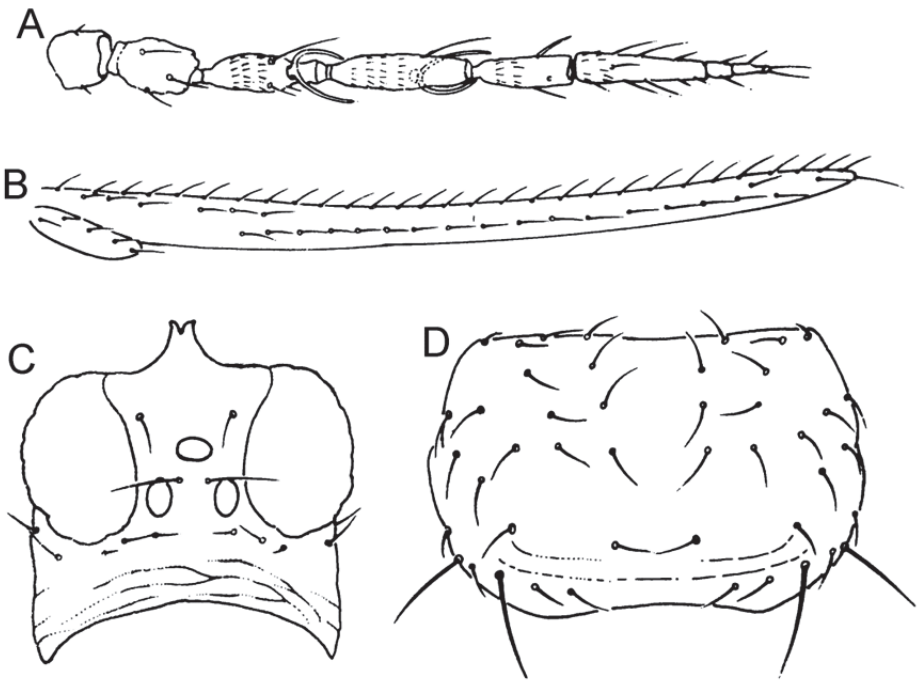

Fig. 115. *Trichromothrips xanthius* (♀) A . antenna; B. forewing; C. head; D. pronotum.

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書　　名：台灣錐尾薊馬（昆蟲綱：纓翅目）之分類描述（語言別：英文）
Taxonomical Description of Terebrantian Thrips (Insecta: Thysanoptera) of Taiwan
編 著 者：王清玲 Chin-Ling Wang
發 行 人：陳駿季 Junne-Jih Chen
出 版 者：行政院農業委員會農業試驗所
Taiwan Agricultural Research Institute, Council of Agriculture, Executive Yuan
地址：台中市霧峰區萬豐里中正路189號
No.189, Zhongzheng Rd., Wufeng Dist., Taichung City 41362, Taiwan (R.O.C.)
電話：（04）23302301
傳真：（04）23338162
網　　址：http://www.tari.gov.tw
出 版 年 月：2016年2月初版
定　　價：500元
系統號：87369
ISBN：9789860478952
展 售 處：GPK政府出版品知識庫http://www.govbooks.com.tw/GPK

電子書設計製作
設 計 製 作：學安文化事業有限公司
地　　址：台中市南區仁和二街78號
電　　話：（04）22861600
電 子 郵 件：shan.adsl@msa.hinet.net

電子書播放資訊
作 業 系 統：Windows, Mac
檔 案 格 式：Adobe PDF
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